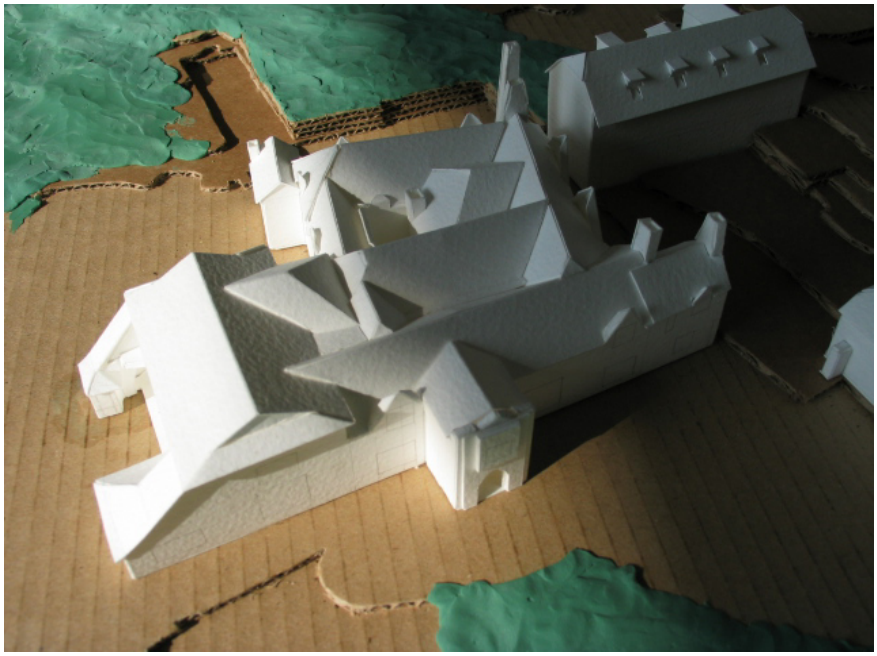
XV Schumacher College Extension

Now, many of you probably know Schumacher College in Dartington. In 2004, I had the opportunity to demonstrate the difference between a morphogenetic approach, and the present day technical approach to sustainable architecture. Schumacher College had been considering a design for an extension. It was designed by an architect, well-known especially for his skill in dealing with topics of sustainable design. Professor Brian Goodwin, head of the Masters program at Schumacher College, was unsure about the validity of the proposed design, and asked me to demonstrate what kind of project was likely to emerge if a morphogenetic approach were used instead. I agreed, and he then commissioned my firm, the Center for Environmental Structure, to make a first phase design for the extension.

Schumacher College as it now exists: The front of the building known as the Old Postern

Up the front path

Roofs from the back



Beginning from what is there now.
We built this small model of the present Schumacher College and surroundings and topography, so that we could use it as a laboratory to investigate the impact of structure- preserving transformations.

Representation of the circle that one can feel in the land and the front of a possible terrace.

Beginning of the morphogenetic process. We could see and feel a circle in the land, and knew it would be important in guiding the development. And, even in this earliest move, we suggested a curved terrace in front of the building, reflecting the circle, and making a place of repose.

A new courtyard beyond the library, though approximately rectangular, also echoes the circle, and especially in the top right hand corner follows a curved line.

The new courtyard and the circle in the land are integrated. The curve of the new courtyard replaces one edge of the circle. In addition, the buildings in the lower part of the picture are retained with their physical fabric only slightly modified, thus maintaining continuity with the character and structure which exists.

Looking up the front path of the real place. Then imagining how this view might be transformed to include a configuration in harmony with the wholeness that is there now.

Looking up the front path, making the main dome golden, seeing a forest cathedral made from the tall trees at the back of the old Postern

A connective path to the forest garden behind the college

A path is made to the beautiful biological experiment known as the forest garden, thus creating a usable connection to the land lying north. The gate to this path passes under the golden dome.

Trying domes: Bankoku Sasagawa, one of the CES staff, working on the model

Trying different dome shapes and sizes, to find the best fit to the land and to the existing buildings. Even the small extensions visible in the upper buildings have

common lounge areas approachable from the outside, and are also marked by small half-domes.

In the trees. Here we see the result of a policy of subtle adjustments, reaching out into the land in all directions, and maintaining connection with the trees and forest cover on surrounding land, so that it all becomes connected, and maintains its wholeness.

In this state of the model (previous page) you also see how the circle in the land has been memorialized in small megaliths, standing about 30 feet apart, and standing upright in the grass, to mark the original circle that was observed.

Now we had to find out how big these stones should be!

Testing a mock-stone in place for one of the circle stones

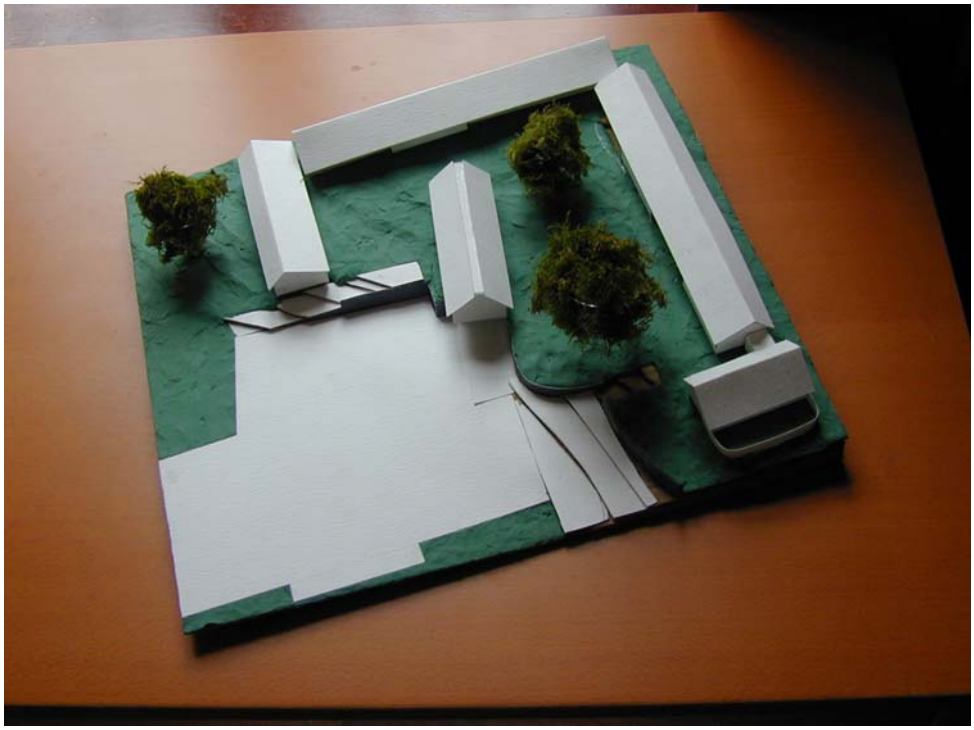
Testing a smaller stone (visible behind the twigs) which fits better and is less aggressive

A sketch of a new library re-using an existing building, but modifying it to honor the land, and made in a way that has some spirit -- with green glass and plant-like tracery to form windows of a special character reflecting the values and philosophy of the College.

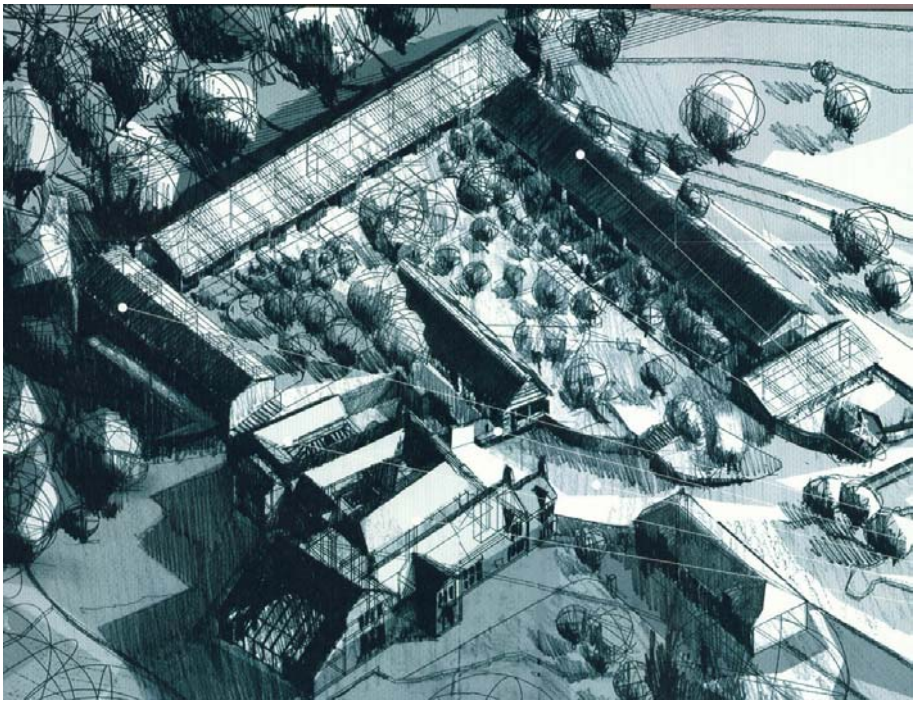
Testing the appearance of the new Library windows on the model

Director of Schumacher College, Anne Phillips and Chris studying the model together

A More Technical, And More Conventional, "Sustainable" Approach

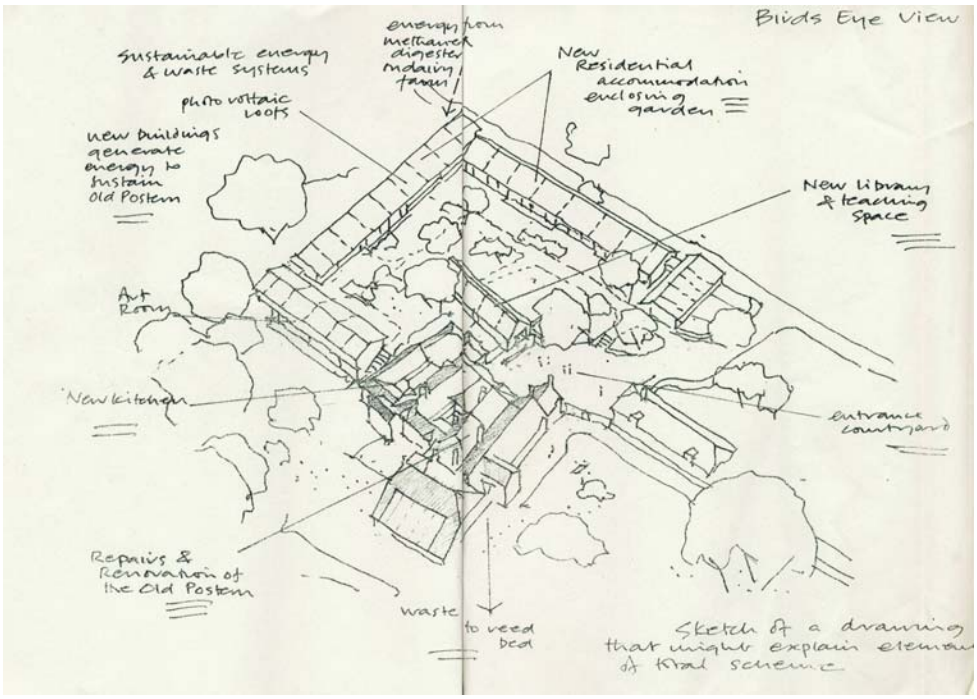


Model of the original Ronalds sketch design (first commissioned by Schumacher college). We made this model, in three dimensions, and at the same scale as our model, so that the two could be compared. The white area bottom left of the photograph, represents the footprint of the existing Old Postern building. We did not have the resources to duplicate a second Postern mode for this design, and it was impossible to remove it from the other.



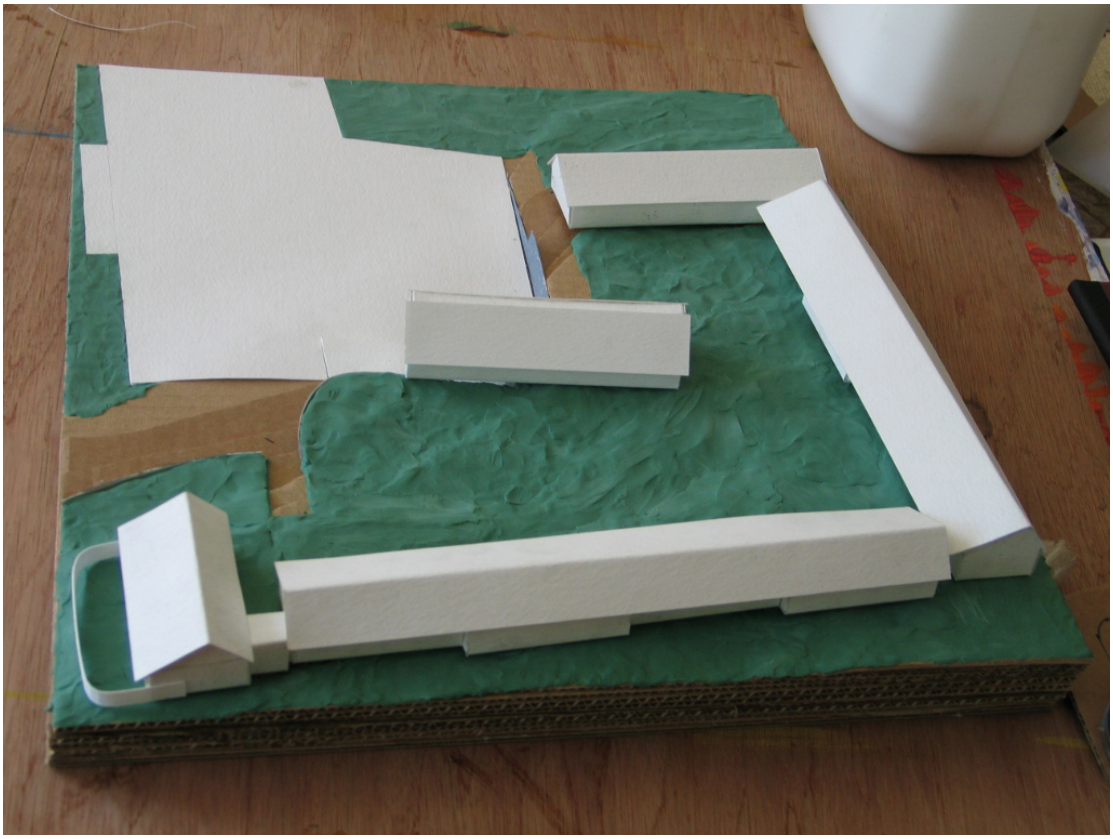
The architect's rendition of his recently proposed sustainable design with re-use of rainwater, thermal walls, possible solar panels, roofs oriented to sun.

This design is more technical in orientation, but done with less concern for the wholeness of the land, and less awareness of the wholeness that is present in Schumacher College as it exists today. It pays less attention to the configuration that has grown over time, and for the subtle harmony to be achieved by building on what is there already. I believe it is also less sustainable in real terms and in terms of sustaining human life and plant life and money. It also involves needless destruction of existing buildings.



Architect's own sketch of techno-scheme. It includes photovoltaic panels, reed-bed sewage treatment, sustainable energy and waste system . In theory it is sustainable. Indeed, it is plain that the architect made a very sincere effort to incorporate all available technical-sustainable thinking.

CES design overview, seen from the east



The Ronalds design, also seen from the east.
A sustainable design, when it is made according to technological views of what is sustainable

Clearly the technical solution is intended to be sustainable in all sense of the word. What is remarkable is that, in comparison, this project appears gross and scaleless.

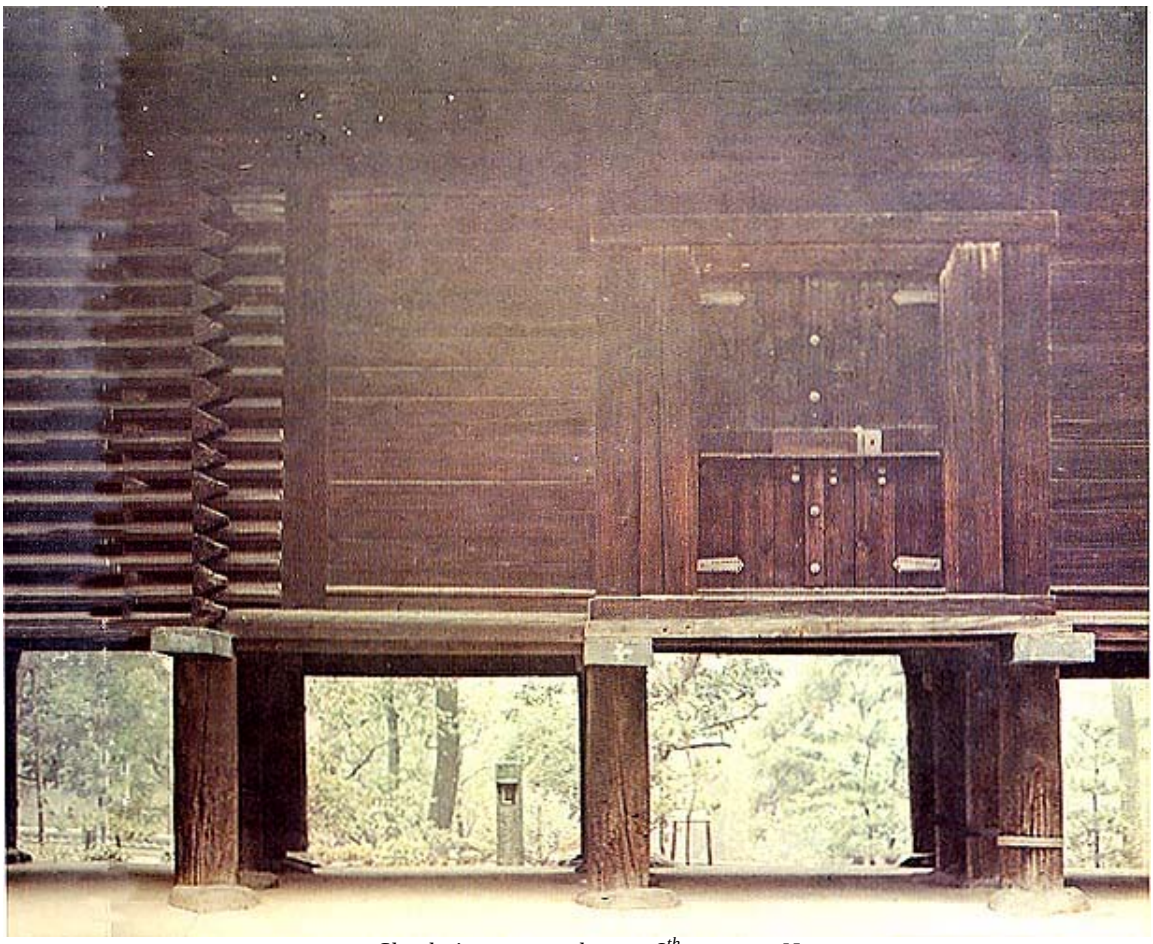
That is, I believe, a direct result of the approach used to produce the design. The technical approach focuses on a narrow range of issues and emphasizes them, above all others. The whole point of the morphogenetic approach is that it produces finely detailed structure, at a variety of scales, and produces sustainable and coherent wholes, at all the intermediate levels of scale, that are appropriate for human life, social life, biological life and ecological life.

What the morphogenetic approach generates – if it is done correctly – will always be something like this:

A living result of morphogenesis
A design made through a process which allows each step, slowly, slowly, to preserve the existing whole, and create something that fits into, and enhances, and makes precious, the existing land

XVI Approaching the Human Soul

Let's see. I think it would be helpful to show you half a dozen or a dozen pictures of some of the great places of the spirit, that have been made by human beings. And I think that it would be helpful – indeed very important -- to remember that all of them, in every single case, were made by the kind of morphogenetic process I have been talking to you about. These things represent true sustainability, they sustain the heart, and sustain the soul. They sustain the humanness of the person. And they sustain the Earth. The very last picture, shows a temple called Myo-Honji in Kamakura. In Japanese, the phrase "myo-honji" means "subtle reality temple."



Shoshoin treasure house, 8th century, Nara

Church in the Aegean sea

Another part of the Aegean

Another church

Sand Garden of Tofukuji

The bridge at Tofuku-ji

Moss garden, Tofuku-j

San ju san Gen do – the thirty three bay temple in Kyoto with a thousand golden buddhas

Myohonji, Kamakura.
In Japanese "myohonji" means "subtle reality temple"

I was going to show you other things, but I think it's probably in everybody's interest that I don't. So I will stop now….So thank you very, very much. Very lovely, lovely, thank you so much.

Thank you very, very much, for listening to me.

---

1 Christopher Alexander, *The Nature of Order*, Four volumes, Center for Environmental Structure Publishing, Berkeley, California, 2002-2005.

2 John Steinbeck, *The Grapes of Wrath*, Penguin classics paperback edition, 2000, page 85.

3 Text on structure preserving.

4 Will be available on the CD of wholeness enhancing processes.

5 This sequence may be seen on two DVDs. The Schumacher Lecture DVD, available from CES in California, or at PatternLanguage.com. And secondly, the DVD entitled Change Your World, also available from CES in California.

6 The following discussion is a drastically reduced summary of the empirical findings reported in Book 1 of *The Nature of Order*, *The Phenomenon of Life*, CES Publishing, Berkeley, 2002, see especially chapters 8 and 9, pages 313-70.

7 This question, and the many ways of asking it, are discussed at length in chapter 9 of Book 1 of *The Nature of Order*. The chapter is called *"Beyond Descartes: A New Form Of Scientific Observation"*, and indeed the whole chapter is devoted to this question.

8 See chapters 1-17 (pages 15-494) of *The Nature of Order*, Book 2, *The Process of Creating Life*, CES Publishing, Berkeley, 2002

9 *The Nature of Order*, Book 1, *The Phenomenon of Life*, pages 143-296.

[10] Pages 2-3.

[11] See pages 518-19 and following pages of *The Nature of Order*, Book 3, *A Vision of a Living World*, CES Publishing, Berkeley, 2005.

[12] Ibid, pages xxx-xx.

[13] Stuart Cowan, Conservation Economy, with Ecotrust, http://www.conservationeconomy.net

[14] Myanmar at a Glance, World Bank, website http://www.worldbank.org/data/countrydata/aag/mmr_aag.pdf.

[15] See Alan Weisman ***Gaviotas****: A Village to Reinvent the World*, Green Books, 1998.

[16] Grameen bank reference.

[17] DEFRA subsidy program

[18] **"Macro-engineering options for climate change management and mitigation" , Isaac Newton Institute in Cambridge from 7-9 January, 2004. Cambridge UK Conference Look Into Climate Engineering, January 26, 2004**

[19] **Toni Thayer, Global Weather Control System: Flurry Of News Stories Just Released**
Hoffman, R. N., 2002: Controlling the global weather. *Bull. Am. Meteorol. Soc.*, **83**, 241–248. also
Ross N. Hoffman, Controlling Hurricanes: Can hurricanes and other severe tropical storms be moderated or deflected? Scientific American, October 2004.
Ross N Hoffman, *Controlling the Global Weather*, Atmospheric and Environmental Research,Inc. PDF **…**
http://www.niac.usra.edu/studies/study.jsp?id=715&cpnum=01-01&phase=II&last=Hoffman&first=Ross&middle=N&title=ControllingtheGlobalWeather&organization=AtmosphericandEnvironmentalResearch,Inc.&begin_date=2002-03-0100:00:00.0&end_date=2003-01-3100:00:00.0 02/18/05, 5399 bytes

[20] Ross N. Hoffman, Christopher Grassotti, John M. Henderson, S. Mark Leidner, George Modica, and Thomas Nehrkorn *Controlling the Global Weather*. Atmospheric and Environmental Research, Inc.
131 Hartwell Avenue, Lexington, MA 02421-3126 Telephone: 781.761.2288 15 July 2004 **Universities Space Research Association (USRA), NASA Institute for Advanced Concepts (NIAC)**

[21] Stewart Brand, How Buildings Learn, …

[22] John Holland, Complex Adaptive Systems, …

[23] Shlomo Angel, *Housing Matters*, Oxford University Press, 2001.

[24] See *The Nature of Order*, Book 2, *The Process of Creating Life*, CES Publishing, Berkeley, 2003, pages 511-50.

[25] *Historical Estimates of World Population.* Source: U.S. Census Bureau, Population Division, International Programs Center. Last Revised: 26 Apr 2005

[26] J. Kimball, Human Population Growth, *Kimball's Biology Pages*, http://users.rcn.com/jkimball.ma.ultranet/BiologyPages.html September 2004. Diagram courtesy of John Kimball.

[27] Lovelock, The Gaia Hypothesis, ..