

## Appendix F – Text extracts from the literature

The following referenced quotations are classified into sections, according to topic. The main text refers to them by a mention with the appendix letter and number and the topic name in the following format: <Extracts F5\ Gauging thinkers>.

The sections contain selected extracts from the literature for the benefit of the reader who is unfamiliar with these subjects. A number of these do not belong to dominant culture, but are 'hidden', and therefore few people are aware of them. The introductions present the issue and sometimes summarise the relevant literature.

Some sections aim to demonstrate directly patterns of language, thinking or experiencing, without commentaries that would interfere by adding interpretation. Some aim to demonstrate the existence of issues that are not taken into account in academic research.

### Text extracts F1, F2, F3 – Myths

#### ***F1\ Myth from the Yauelmani Yokuts***

*'The beginning of the world* (Myth from the Yauelmani Yokuts in Eliade 1996).

At first there was water everywhere. A piece of wood (wicket, stick, wood, tree) grew up out of the water to the sky. On the tree there was a nest. Those who were inside did not see any earth. There was only water to be seen. The eagle was the chief of them. With him were the wolf, Coyote, the panther, the prairie falcon, the hawk called po'yon, and the condor. The eagle wanted to make the earth. He thought, 'We will have to have land.' Then he called k'uik'ui, a small duck. He said to it: 'Dive down and bring up earth.' The duck dived, but did not reach the bottom. It died. The eagle called another kind of duck. He told it to dive. This duck went far down. It finally reached the bottom. Just as it touched the mud there it died. Then it came up again. Then the eagle and the other six saw a little dirt under its fingernail. When the eagle saw this he took the dirt from its nail. He mixed it with *telis* and *pele* seeds and ground them up. He put water with the mixture and made dough. This was in the morning. Then he set it in the water and it swelled and spread everywhere, going out from the middle. (These seeds when ground and mixed with water swell) In the evening the eagle told his companions: 'Take some earth.' They went down and took a little earth up in the tree with them. Early in the morning, when the morning star came, the eagle said to the wolf: 'Shout.' The wolf shouted and the earth disappeared, and all was water again. The eagle said: 'We will make it again,' for it was for this purpose that they

had taken some earth with them into the nest. Then they took *telis* and *pele* seeds again, and ground them with the earth, and put the mixture into the water, and it swelled out again. Then early next morning, when the morning star appeared, the eagle told the wolf again: 'Shout!' and he shouted three times. The earth was shaken by the earthquake, but it stood. Then Coyote said: 'I must shout too.' He shouted and the earth shook a very little. Now it was good. Then they came out of the tree on the ground. Close to where this tree stood there was a lake. The eagle said: 'We will live here.' They had a house there and lived there.'

### ***F2\ Mother Corn leads the first people to the surface of the Earth***

*A Pawnee emergence myth from the ritual account given by the Pawnee Indian, Four Rings, to Dr. Melvin Gilmore. (in Eliade 1996)*

'Before the World was we were all within the Earth.

Mother Corn caused movement. She gave life.

Life being given we moved towards the surface:

We shall stand erect as men!

The being is become human! He is a person!

To personal form is added strength:

Form and intelligence united, we are ready to corn forth

But Mother Corn warns us that the Earth is still in flood.

Now Mother Corn proclaims that the flood is gone, and the Earth -now green.

Mother Corn commands that the people ascend to the surface.

Mother Corn has gathered them together, they move half way to the surface;

Mother Corn leads them near to the surface of the Earth;

Mother Corn brings them to the surface. The first light appears!

Mother Corn leads them forth. They have emerged to the waist.

They step forth to the surface of the Earth.

Now all have come forth; and Mother Corn leads them from the East towards the West.

Mother Corn leads them to the place of their habitation. . . . All is completed All is perfect! '

### F3\ Chameleon and Hare

*Traditional — Africa*

The Khoi-khoi people have a story about an insect and a hare taking different messages about death to the first people. This story is also from southern Africa, but the messengers this time are Hare and Chameleon, or Mr Tread-Carefully, as he is sometimes called.

## God's message to the first people

Chameleon is wise. He treads carefully, gripping twigs firmly, looking where he places his feet. Even on his longest journeys, he does not hurry. He stops to nibble leaves. He waits silently and looks about him before moving off. He is slow, but sure.

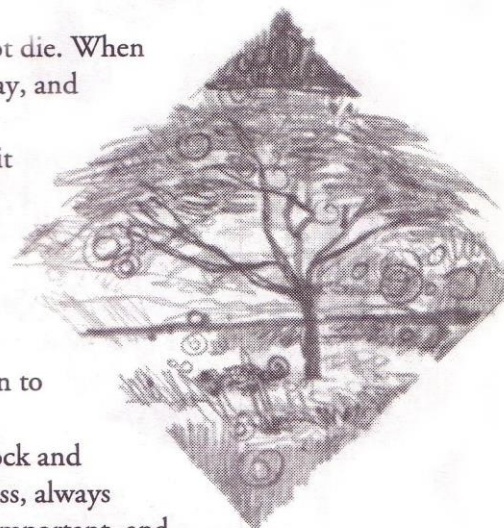
Wherever he goes, Chameleon concentrates so hard that he makes himself look like that place! On a rock he is grey, in a tree he is green. Sometimes he is multi-coloured. That's why Chameleon is a good visitor. When he is with you he can be like you are. He can change and seem to be another person. That way he understands many different things.

This is why, when the world was new, God chose Chameleon to take an important message to the first people on the earth. He knew Chameleon would understand the message, and not forget it. He knew that though Chameleon would take his time, he would go in the right direction and find the first people.

The message was very important: 'People shall not die. When they have finished their time on earth, they shall go away, and then return from time to time, like the moon.'

Chameleon studied the message and memorized it slowly, in his usual careful way, and then he set off to find the first people. It would be a long journey, and he had to conserve his energy, so he stopped frequently to nibble shoots and leaves. Because he hadn't walked along the earth before, he had to keep studying the stars and the shadows of the sun and moon to check he was going the right way.

Along he went steadily, over burning sand and rock and cool river-mud, through soaking jungle and tall dry grass, always watching where he placed his feet. God's message was important, and Chameleon must deliver it without any mishap along the way. Concentrating hard as he walked, he changed into the different colours of the places he passed through. He became yellow with the desert sand, mottled and dark with the shadow on the floor of the jungle, then grey with the hard rock.





Days and days passed. God was beginning to worry. It had been a long time since Chameleon left. What could have happened? Had he lost the way? God thought he would send another messenger, just to make sure the message got through. So he called Hare, the cleverest of the animals, to come to him. He told Hare what had happened. Perhaps Chameleon had lost his way, or fallen off the earth somehow. Hare would have to go and take the same message, in case the people hadn't received it.

God spoke the message very clearly and slowly. Hare said it over once, then again. "People shall not die. When they have finished their time on earth, they shall go away, and then return from time to time, like the moon." There, I've learned it by heart already,' Hare said. It was exciting work and he wanted to be off. Without another word he raced down towards earth at top speed.

Unlike Chameleon, Hare was there in no time. Soon he was running through the wet grass of the world, tearing this way and that in sheer fun.

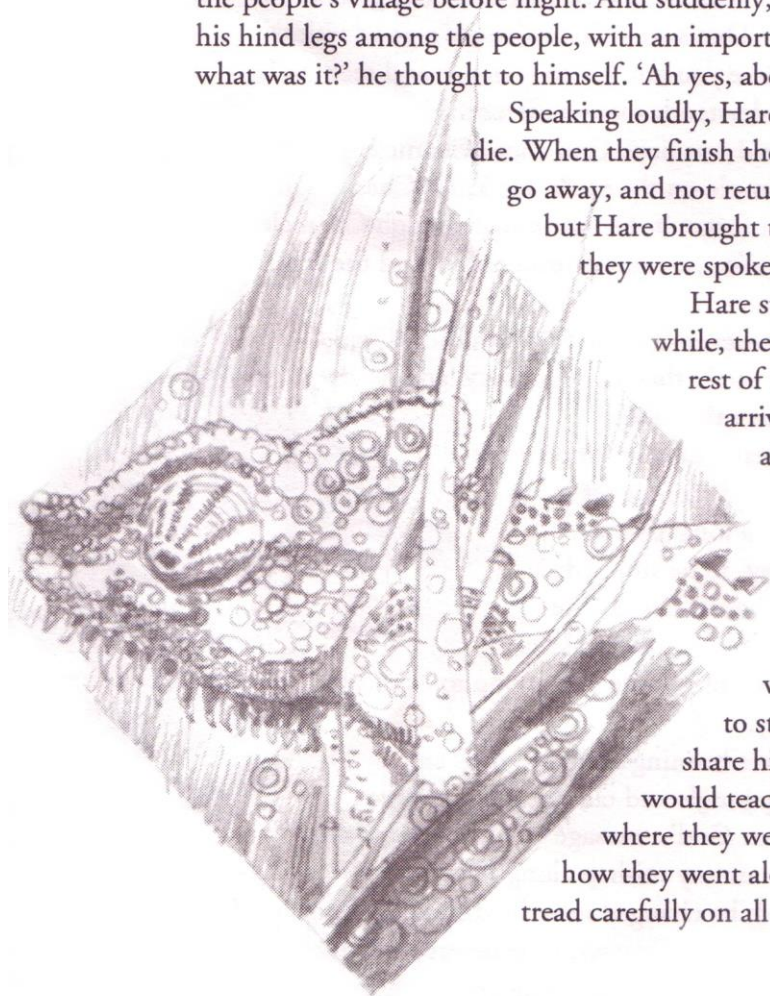
He would stop for a second and twiddle his ears, to check on the right direction, then he was off again. He was enjoying his run more than anything he'd ever done. He was full of amazement at all the things he was seeing and doing on earth, and thinking excitedly of the people he would meet.

Hare raced past Chameleon just a little way before he found the first people, but he didn't see him, because he was in an impetuous dash to get to the people's village before night. And suddenly, there Hare was, standing on his hind legs among the people, with an important message from God. 'Now, what was it?' he thought to himself. 'Ah yes, about returning to earth.'

Speaking loudly, Hare gave the message: 'People shall die. When they finish their time here on earth, they shall go away, and not return.' It was not God's message, but Hare brought the words from God and once they were spoken they could not be altered.

Hare stayed with the first people for a while, then hurried off to look round the rest of the earth. When Chameleon arrived, it was too late. It had already been decided that people should die and never return to earth. All the people knew.

Chameleon could not change the way the world was. Instead, he decided to stay with the people and try to share his wisdom with them. He would teach them to concentrate on where they were on earth and to think about how they went along. He would help them to tread carefully on all their paths through the world.





## Text extracts F4 – Syndromes of instability

The FM-ME-CFIDS syndrome appears, at face value, as a curiosity of medicine, not worth much attention, compared to ‘killer diseases’. Yet digging into the issue reveals that these three names are barely even the tip of an iceberg. There are countless low-grade conditions, chronic and acute, that have similar characteristics, but whose existence is always challenged. Their wide spreading in the population are hidden by the diversity of their names and synonyms (under physical *and* human headings), by the overlapping of symptoms in countless differently named medical conditions, and by the acceptance of many of their symptoms as part of normality. Internet message boards are witness to the despair of those affected by such symptoms (unspoken of when low-grade) who complain about the lack of explanation or help, and welcome finding out that others also experience them, and not ‘just in their head’. The general, cultural focus on dire emergency (linked to the idea of survival) hides their role as pre-‘disease’ developments. Some of the names of such conditions are listed in the section <Names and synonyms> below, and the many perspectives on them are detailed in the rest of Part 3 (<The H-clinical viewpoint>). Part 2 (<The Sc-medical viewpoint>) reviews various technical explanations to highlight certain patterns.

The low-grade chronic syndromes studied in this work have general similarities: they are systemic but manifest preferentially as clusters of symptoms that affect various bodily systems (thus appearing as different illnesses) or locate in various places of the body (eg ‘burning feet’, ‘hot ears’, ‘hot flashes’, acne). They also display some contrary characteristics of ‘hyper-‘ and ‘hypo-‘ function in different aspects, simultaneously or in turn, which denotes their bimodal and unstable nature.

Among all the names and description, I find that the most adequate one for the ‘hyper-‘ part of the generic case I studied through my own (local case), is ‘white fever’. It is, according to Furth (1999), women themselves who used the name ‘white fever’. As I see it, it

represents at once the damage (it is a named ‘condition’), the agitated reactions or behaviour, and the ‘bloodless’ facial appearance, in a descriptive manner (colour), without naming any causal origin or triggering process. For the ‘hypo-‘ part of the syndrome, the exhaustion and weakness, the terms ‘depletion’, ‘wasting’, or ‘consumption’ would describe the diminishing of the ‘bodily reserves’ and of the person’s ‘resources’ to cope or survive, and the loss of integrity under physical strain or mental stress that are attached to this condition. The words wasting, white, fever (which means both agitated and hot) are also typical of the archaic literature. They provide an understanding of the syndromes that is completely lost in contemporary causal medicines (dominant or alternative), and with it, the easiest way to undo and prevent these states.

The following extracts will help the reader ‘see patterns’, understand the ‘workings’ of such syndromes, and gain an overall view of the medical-clinical landscape concerning them.

## Part 1: The Sc-H- viewpoint: theory/practice & instability

### ***Reactivity and extremes of sensitivity: disrupted stability***

- ‘The "Specific Adaptation Syndrome" has been described in humans to differ from the "Generalized Adaptation Syndrome" in that maladaptation can occur to one specific stress, in particular a single chemical (Randolph, 1962). The extent to which these stress syndromes are equivalent can be debated, but in any event they are very similar. The concept that multiple chemical sensitivity is a distinct entity that is mused by responses to chemicals originated in the work of Randolph in the 1950s (American College of Physicians 1989, Ashford and Miller 1991). In the disease model proposed by Randolph, multiple chemical sensitivity consists of an inability to adapt to chemicals and the development of responsiveness to extremely low concentrations after sensitization (Randolph 1956); the model postulates multiple symptoms that reflect involvement of multiple organ systems. Randolph's pathogenic schema includes "adaptation." Symptoms can occur on exposure to chemicals or on withdrawal from exposure after an adaptive response has taken place. Randolph and others who apply this model of pathogenesis have used controlled exposures to establish the presence of multiple chemical sensitivity: patients are placed in environments judged to eliminate deleterious agents and then exposed to suspect chemicals. Many of the physicians who apply that model are now referred to as clinical ecologists.’ (Randolph 1956)
- ‘...describe how the insulin glucagon flip- flop controller can be complemented by growth hormone despite both being integral controllers. [,,]Here we describe how the insulin:glucagon flip-flop controller can be complemented by growth hormone, despite both being integral controllers. Homeostatic conflict is prevented by somatostatin-28 secretion from both the hypothalamus and the pancreatic islets. [...] Our synthesis of the information that has accumulated in the literature pertaining to the glucose homeostat predicts that disruption of the flip- flop mechanism... will lead to ... insulin

resistance, glucose intolerance, and impaired insulin responsiveness... it explains Syndrome X (or Metabolic Syndrome).' (Koeslag 2003)

- 'Recently proposed methods of assessment of the cardiovascular reactivity, the "thermodynamic instability score" (HIS) and the "Fractal and Recurrence Analysis-based Score" (FRAS) [...] may be used to support the diagnosis of CFA, [...] A pilot study suggested that midodrine treatment directed at the autonomic nervous system in CFS, results first in correction of dysautonomia followed by improvement of fatigue [and] that manipulating the may be effective.' (Jochanan et al. 2004 p.,203)

- 'When the ergotropic system is activated, the entire body/mind becomes aroused. By comparison, the trophotropic system is "wired" for the fine tuning of organs in relation to each other as the demands of internal maintenance shift and change...The point to emphasize is that whereas the trophotropic system is designed for continuous activity. We are "wired" for short, infrequent bursts of adaptive activity interspersed with relatively long durations of rest, recuperation and growth...Prolonged ergotropic reactivity may cause depletion of vital resources stored by the trophotropic system in various organs, and may cause fatigue, shock, body damage, and in extreme cases, death (Selye 1956; Antonovsky 1979)... The particular balance of ergotropic and trophotropic activities under particular environmental circumstances is susceptible to conditioning... and there is evidence that their characteristic balance under stress is established as early as pre-and perinatal life (Grof 1976; [etc.])' (Laughlin et al 1990 p. 316)

- 'Two somewhat different but related sets of ideas have been presented: nonlinear dynamics and information exchange within the organism and between it and the environment by signals. Both of these concepts speak a language that expresses the basic characteristics of the dynamics of whole living organisms and other complex systems: function in its various forms; qualitative (parametric) changes in function; rhythmic and usually stable modes of functioning; and individual variations in function. [...] Integrative concepts have been needed in the field of stress research. [...] An integrated portrayal of the organism in its world was sought. Until recently no common language seemed to exist... A long sought-for language seems now to be evolving that may accomplish this unifying purpose. Function is such a unifying and dynamic concept.' (Weiner 1992 pp.283)

'Nonlinear mathematical models are approximate descriptions of the dynamic functions of biological systems. It is acknowledged that a more realistic account of physiological rhythms is needed. Feedback, that in part accounts for them, is provided by information exchange within the organism and between organisms by signals of a large variety of kinds. In this way, the organism is kept informed about its own internal state and the condition of the external environment.' (Weiner 1992 p.283)

'Patterns are rhythmic. Rhythms have qualitative properties by which they can be described and distinguished. The genesis of rhythmic patterns of biological and behavioral systems – i.e. the function and behaviors of cells, organs, or whole populations or organisms – can be described by the mathematical concept of self-organization in nonlinear systems. Nonlinear characterization of a system also defines the conditions for stability, fluctuation, and phase transitions of functions into other stable conditions or those that favor the evolution and emergence of new properties of a system over time.' (Weiner 1992 p.283– see <Extracts F8\ Establish: forms of stability>)

'Selye believed that many diseases – hypertension, peptic ulcer, and allergic, rheumatic, and collagen diseases-were the product of excessive or "adaptive" reactions, in which the corticosteroids played a pathogenic role.[...] We know today that these varied diseases are not only multifactorial and heterogenous in their etiology and pathogenesis, but are also characterized by disturbances ...' (Weiner 1992 p.15)

Rhythmic functions manifest stability but, being dynamic are perturbable.' (Weiner 1992 pp.284)

'Empirical advances: Until fifteen years ago stress research consisted of correlations between the stressor and the physiological and/or anatomical changes in the body. The discovery of the brain-gut peptides and other advances in neurobiology have [... given] a new impetus to stress research. (1)Two forms of stress analgesia have now been described [...] (2) The function of brain peptides is to produce *patterned* physiological changes, which are exactly what an integrated view of the responses to stressful experiences demands..' (Weiner 1992 p.5)

'...the organism responds in a patterned and integrated, ... to ... perturbations, ... or complex changes in the environment. One seeks to understand by what means the organism recognizes them, what is



the meaningful signal that is perceived... behavioral and physiological responses designed to ensure survival..' (Weiner 1992 p.2)

'the person for diverse reasons has failed to cope...' (Weiner 1992 p.15)

- 'There is another category of pain, however, called chronic pain. As far as we know, this type of pain does not serve any known purpose; it has outlived its usefulness. Think of it as the signaling system stuck in the "on" position. This type of pain can be caused by an obvious source of ongoing damage to the body, such as in rheumatoid arthritis. The nerves themselves can be damaged, such as with shingles or carpal tunnel syndrome. However, the most frustrating problems for both patient and physician are those involving a more mysterious dysfunction in the pain sensing or interpretation centers of the spinal cord and brain. Fibromyalgia and chronic migraine fall into this category. [...] 'Doctors are now practicing in an era of "evidence-based" medicine. If one can't prove something, based on randomised double-blind placebo-controlled trial, then it must not be true. Taken to excess this view discounts individual clinical experiences.' [...] Jackson attempts to pull together information from history, science, philosophy, culture, religion, and from the patients and pain specialists she interviews, in a search for the meaning of pain. [...] The author writes about the "Myth of Two Pains" -- physical vs mental -- [that has plagued us for centuries and continues to adversely affect our treatment of patients suffering from chronic pain. She notes the 19th-century view that: "pain wasn't legitimate unless it could be pointed to, probed and measured; otherwise it was 'hysteria,' 'neurasthenia,' or simply madness. [...] On the other hand, Jackson also discusses why pain is not simply about altered neurochemistry. She writes about the need to acknowledge psychosociospiritual contributors in a patient with pain, without "blaming the victim" or dismissing the problem as "all in the head." She touches on the intriguing idea that our early life experiences of suffering, such as childhood traumas, can hardwire our "pain thermostats" to be more sensitive to pain later in life.' (Jovey 2002)

## Part 2: The Sc-medical viewpoint

### ***Inflamed: developments of a syndrome of reactivity***

- 'The most obvious pathology in IBD is inflammation, probably with an autoimmune element, and there are certainly numerous inflammatory mediators and metabolites present (e.g. cytokines). Of the other typical pathologies, those with a nutritional element include [...] increased gut permeability, increased oxidative stress...abnormalities of nitrous oxide...changes in the local bowel environment...abnormal metabolism of short chain fatty-acids and food allergy...Of course many of these are interrelated ... making it all very hard to unravel 'the cause' in a strict sense. [...] With such uncertainty about cause it is hardly surprising that nutritional therapy has tended to be more pragmatic than derived from some fundamental understanding of the aetiology of IBD. [...] There are many reasons why IBD patients might be malnourished.' (Helman 2005)
- 'Knowledge of the world outside... Our senses relay this information to the brain...information, chemical, electrical...five primary senses- sight, sound, taste, smell and touch... directed outward...immune system surveys the world within... translates into a language the brain itself uses to regulate body processes... No one would now question that the mind can accelerate, or possibly even initiate, morbid conditions in the body through the immune system. But could it just be that the mind, in addition to causing disease, can also help us actively to ward it off... Which system dominates in a crisis?' (Clark, pp.240-241).
- 'For many disorders inflammation is so obvious it does not have to be measured. For example, the pain of arthritis is a clear enough sign of inflammation. Swelling redness, and tenderness to the touch also are obvious signs of inflammation [...] These are typically localized forms of inflammation. [...] More general systemic, or bodywide, inflammation is not always apparent. Inflammation of blood vessel walls increases the risk of a heart attack...' (Challem 2003 p.15)

- 'Background: Sepsis is a vast clinical entity that takes a variety of forms. The spectrum of disorders spans from relatively mild physiologic abnormalities to septic shock. The focus of this chapter is on systemic inflammatory response syndrome (SIRS), a syndrome that encompasses the features of systemic inflammation without end-organ damage, identifiable bacteremia, and the need for pharmacologic support. [...] Stages: A continuum exists from an immune trigger to SIRS to sepsis to severe sepsis to septic shock that leads to MODS and death. The "window of opportunity" for targeted intervention is immediately after SIRS develops. The patient's course along this continuum may be charted as a prognostic indicator. Clearly, progression towards the latter elements in the continuum is a poor prognostic event.... The key transition from SIRS to sepsis according to definition is the presence of an identified pathogen.' (Kaplan, et al. 2004)
- 'Inflammation by remote control: ...adaptive immune system orchestrate the innate inflammation that promotes tumour progression. The link between inflammation and the promotion of cancer was first observed in the nineteenth century, but only in recent years has it become generally accepted. Overall de Visser and colleagues draw attention to the poorly explored issue of the interplay between the innate and adaptive arms of immunity – on the one hand in surveillance against cancer T cells, and on the other in inflammation–driven cancer promotion. Therapeutic targeting of cancer-promoting inflammatory reactions is in the early stages of development, and its progress will depend on defining the underlying cellular and molecular mechanisms in the relevant systems. [...] Surface cytokines-remodelled triggers mast cells.' (Mantovani 2005)
- '...Doctors are loathe to believe that the patient's list of symptoms has any validity without some blood test, x-ray or palpable lump. When I found food sensitivities in myself and my family that explained... it was easy to find similar reactions in my patients... Most readers will discover that they are not hypochondriacs or emotional cripples.' (pp v and vi) [...] . 'Many scientists now believe that disease, including allergy, can first be detected as a disturbance of the normal flow and balance of the energy in the body... Since every cell in the body produces energy and has polar energy, energy is the fundamental principle that underlies everything that happens in the body including biochemical changes.' (Bateson-Koch 1994p.163)
- 'Autoimmune disease is now the third major category of illness in the U.S.: Seventy-five percent of those affected are women.' (Vennum, 2001)

### ***'White fever', 'Green sickness' and exhaustion:***

#### ***Female instability in medieval frameworks***

- Furth (1999) describes the medieval Chinese 'the earned doctors' efforts... to find the roots of women's illnesses in holistic clinical patterns beneath the surface of ordinary symptoms. [...] They medicalised menstruation as a bodily signifier of ideal female normality identified with fertility'(p.60) This shifted how 'the female body was read. Abnormal vaginal discharges took a back seat to irregular menses, shifting the pathological sign from the foul to the unpredictable'. (Furth 1999 p76) 'No special prescriptions for women were indicated for any febrile disorders from Cold Damage (*shanghan*) or Warm epidemic (*wenyi*) – the largest, most important syndrome clusters thought to arise from pathogenic *qi* in the environment. This was in keeping with Sun Simaiao's classic statement that disorders due to external agency were no different in males and females.' [...] (Furth 1999 p.79) 'However, three broad internal syndromes clusters were given a place in the *fuke* chapters, indicating that in females doctors should look for signs of gender difference. First, Wind stroke was grouped under a master pattern functional disorders [sic] from Wind (*feng*). Wind was found both in the external world and within the body... manifest in pathological internal changes – rapidly moving symptoms and sudden loss of function. [...] The paradigmatic Wind attack was a stroke, apoplexy, paralysis coma, or perhaps a fit marked by ravings and convulsions. Working more slowly, pathodegic wind might lodge in the limb that withered, the extremity that was numb, the rheumatic joint, the palsied tongue. (Furth 1999 p.79) 'The second broad cluster, depletion fatigue, assembled afflictions marked by slow, chronic wasting, where the sufferer grew emaciated and debilitated, accumulating a host of secondary symptoms from

pallor, indigestion and shortness of breath to hair loss, hot sensations on palms of hands and soles of feet, and palpitations, while also experiencing destabilized psyche marked by disturbed dreams or insomnia, fits of melancholy or anger.’ (Furth 1999 p.79)

‘The third cluster, “swellings and accumulation” (*jiju*), produced as “swellings”, masses, tumors, lumps or circulation blockages where the movement of *qi* up and down was impeded.’ [...] As illness labels, this kind of symptomatic nosology represented only the beginning of diagnosis, which ideally proceeded to distinguish patterns... *Fuke* emphasized disorders from Wind presumed to agitate and destabilize Blood and *qi*. [...] Wind-generated itching and irritation of skin, or hives, also were included...’ (Furth 1999 p.80)

[...] ‘Finally, the most dangerous, life-threatening forms of depletion fatigue – “bone steaming” – required “separate prescriptions”. To today’s readers, such advanced fatigue, eventually penetrating to bones, sounds like the tubercular “consumption” of early modern European medicine in its patterning of physical decline, respiratory distress, emotional volatility and sexual excitability. The sufferer experiences shortness of breath, loss of appetite, fierce sweats, cold extremities, dreams of intercourse with ghosts, ...coughing and pain in the side...’ (Furth 1999 p.79-81)

- ‘The second broad cluster, depletion fatigue, assembled afflictions marked by slow, chronic wasting, where the sufferer grew emaciated and debilitated, accumulating a host of secondary symptoms from pallor, indigestion and shortness of breath to hair loss, hot sensations on palms of hands and soles of feet, and palpitations, while also experiencing destabilized psyche marked by disturbed dreams or insomnia, fits of melancholy or anger.’ (Furth 1999 p.79)

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**Green sickness, white fever, chlorosis, disease of virgins, anorexia nervosa, irritable bowel syndrome, or M.E. (myalgic encephalitis), hypochondriasis:**

- ‘Both chlorosis and pregnancy were thought to cause paleness, but the areas of potential overlap between them were reinforced by a further, and striking, symptom they had in common: pica, the consumption of non-food substances such as earth, coal, chalk, and ashes.’ (King 2004 p.10)

‘... dyspnoea, a trembling palpitation of the heart, swelling of the liver, aversion of the stomach towards food, cardialgia, and not uncommonly epilepsy with madness and delirium. Hippocrates vouches for this in his book *On the diseases of virgins*, in these words: afflicted with fancied terrors of spectres, [...] menstrual blood descends... into the small spaces of the womb, as if it were going to flow out. But the mouths of exit of blocked [...] It is not at all surprising... that the tissues of the hypochondria swell, and this compresses the diaphragm, as in dropsy, and causes difficulty in breathing.’ (King 2004 p.47)

‘This could suggest that green sickness operated as a form of internal poisoning. This would be compatible with the Galenic view that the retention in the womb of menstrual blood... can lead to substance rotting, giving off noxious vapours which affect the rest of the body.’ (King 2004 p.26)

‘Liébault went on to claim that few of Hippocrates’ successors, ancient or modern, had been able to match this knowledge of gynaecology, because the subject is inherently shifting and unstable; the diseases of men are easier to treat because they remain constant over an individual’s life, whereas women move between the categories of virgin, wife, pregnant woman and mother.’ (King 2004 p.44)

‘She regarded menstruation and male nocturnal emissions as equivalent, representing “the natural healthy actions of self-balance”; both occur spontaneously in healthy people, and can frighten young people.’ (King 2004 p.136)

‘Hirsch’s survey of medical journals also suggested that chlorosis was widespread in Mexico, the West Indies, Brazil, Algiers, India, China and Japan.’ (King 2004 p.136)

‘Many educated women [1880’s] continued to present female adolescence as a time of dramatic change and instability.’ (King 2004 p.137)

‘By the nineteenth century, the first [menstrual “retention”] was “primary amenorrhoea”, and the second [menstrual “suppression”] was secondary amenorrhoea.’ (King 2004 p.10)



'... similar symptoms would receive very different diagnoses depending on the age and gender of the patient.' (King 2004 p.16)

'What was the disease of virgins?... The broad symptom picture meant that it could include what we would currently want to label as anorexia nervosa, irritable bowel syndrome, or M.E. (myalgic encephalitis), but the idea of such a disease could also account for vague feelings of tiredness or malaise, provided they occurred in a young girl.' (King 2004 p.139)

'... his own recommendation of marriage as a cure, because this will remove any obstacle preventing the blood from flowing out, and "if they become pregnant, they will be cured". However, the last lines of the text warn, even married women may suffer this way if they do not have children.' (King 2004 p.50)

'Jacobi... mentioned what he called "chloro anemic girls" who could often be cured by pregnancy..' (King 2004 p. 138)

'Both chlorosis and pregnancy were thought to cause paleness, but the areas of potential overlap between them were reinforced by a further, and striking, symptom they had in common: pica, the consumption of non-food substances such as earth, coal, chalk, and ashes.' (King 2004 p.10)

'But different labels have always been available to apply to a young girl, "pale as if bloodless", with disturbed eating patterns who failed to menstruate, and different stories can be told depending on whether food consumption is thought to affect menstrual cycles...' (King 2004 p.2)

(See also the 'green substance' that Budwig is purported to have found in the blood of cancerous patients.)

### ***Water: fluids, cerebrospinal fluid, allergy and immune defence***

- 'Malnutrition could contribute to neurotransmitter disturbances.' . (Anderson & Kenedy, 1992 p.120)

'Neurotransmitter disturbances could be related to... fluid or electrolyte abnormalities. (op. cit. p.120)

- 'In general, prostaglandin E<sub>1</sub> (PGE<sub>1</sub>) is thought to relax smooth muscles in the airway and to inhibit muscle constriction. We hypothesized that, under the specific conditions, PGE<sub>1</sub> induces bronchoconstriction, resulting in the promotion of inflammation. Examples of the specific conditions where this mechanism may occur include cases where patient [sic] who are susceptible to inflammation receive a continuous infusion of PGE<sub>1</sub> during induced hypotension or during treatment for intraoperatively abnormal hypertension. [...] Induced hypotension is often used during surgery to decrease the intraoperative bleeding volume... The maintenance of induced hypotension requires a continuous infusion of PGE<sub>1</sub>, since approximately 90% of the dose is inactivated after a single pass through the pulmonary vascular bed.' (Uchida et al. 2003)

- 'Cerebrospinal fluid (CSF) volume depletion [...] is typically indicated when patients present with orthostatic headaches, with or without several other symptoms: neck or interscapular pain, nausea, emesis, diplopia, changes in hearing, visual blurring, facial numbness or weakness, and radicular upper-limb symptoms. [...]with or without evidence of sagging of the brain... Magnetic resonance imaging has revolutionized detection of spontaneous CSF leaks, leading to identification of far more cases and recognition of several clinical/imaging forms of presentation of the disorder. These forms, which are different from the "typical" presentation, include a group with consistently normal CSF pressures (normal pressure), another group without abnormal meningeal enhancement (normal meninges), and a group without headache (acephalic). Each of these forms can be seen in a setting of documented and ongoing CSF volume depletion. Awareness of CSF volume depletion is increasing, and its clinical and imaging spectrum is broadening.' (Mokri 2000)

- 'Most knowledge of human synovial fluid comes from patients with joint disease. Because of the clinical frequency, volume, and accessibility of knee effusions, our knowledge is largely limited to findings in that joint.' (UW Medicine, orthopedics 2005)

'A number of factors interact to confer stability, while permitting motion in active human joints... the shape of the component parts... Ligaments provide a second major stabilizing influence... Muscular stabilization is perhaps most obvious in the shoulder, which is the quintessential polyaxial joint. The rotator cuff muscles approximate and stabilize the articular surfaces. [...] Synovial fluid contributes

significant stabilizing effects as an adhesive seal that freely permits sliding motion between cartilaginous surfaces while effectively resisting distracting forces. This property is most easily demonstrated in small articulations such as the metacarpophalangeal joints. The common phenomenon of "knuckle cracking" reflects the fracture of this adhesive bond. Secondary cavitation within the joint space causes a radiologically obvious bubble of gas that requires up to 30 minutes to dissolve before the bond can be reestablished and the joint can be "cracked" again. This adhesive property depends on the normally thin film of synovial fluid between all intraarticular structures. When this film enlarges as a pathologic effusion, the stabilizing properties are lost. In normal human joints, a thin film of synovial fluid covers the surfaces of synovium and cartilage within the joint space. The volume of this fluid increases when disease is present to provide an effusion that is clinically apparent and may be easily aspirated for study. For this reason, most knowledge of human synovial fluid comes from patients with joint disease. Because of the clinical frequency, volume, and accessibility of knee effusions, our knowledge is largely limited to findings in that joint.' (UW Medicine 2005)

### *Aquagenic urticaria*

- 'No abnormal findings at the physical examination and the laboratory evaluation did not reveal any disturbances.' [...] Aquagenic urticaria is diagnosed by exclusion (1, 6, 8); thus the investigator has to complete all the proceedings that are common for the physical urticarias and other systemic causes of this complex disease. In this case there was a curious parallel observation related to the side effects of the anti-H<sub>1</sub> drug cetirizine. Contrary to what was expected, the patient told of drowsiness with cetirizine, but on the contrary had no side effects and good therapeutic results with another type of anti-H<sub>1</sub> drug, hydroxyzine, which is known to produce drowsiness and other side effects. We do not have any explanation for this except individual response.' (Medeiros 1996)
  - 'Exposure to water can cause urticaria in susceptible patients and antihistamine and anticholinergic medication may not prevent the reaction. The mechanism of this phenomenon remains poorly understood.' [...] 'Approximately 25 cases have been reported... Females were affected more often than males. Of interest, dermatographism may be present, especially in male patients with a history of asthma.' [...] 'These findings suggested an association between cutaneous and bronchial hyperreactivity.' (Luong & Nguyen 1998)
  - 'The relationship of acetylcholine and histamine [releases] to each other and to contact of water with the skin remains uncertain.' (Sibbald et. al. 1981)
  - 'Urticaria is the most benign form of anaphylaxis.' [...] 'By definition, the acute form of urticaria lasts less than 6 weeks, and the chronic form lasts more than 6 weeks.' [...] 'Although the determination of the underlying etiology of urticaria represents a diagnostic challenge, the management of acute urticaria is more straightforward.' [...] 'The etiology of chronic urticaria is undetermined in at least 80-90% of patients.' [...] Recurrent urticaria can be: solar, cholinergic (sweating), aquagenic, related to cold, heat, or to physical or emotional stress.
- Synonyms and related keywords: hives, allergy, allergic reaction, anaphylaxis, anaphylactoid reaction, angioedema, circumscribed areas of erythema, hereditary angioedema, acute immunoglobulin E-mediated hypersensitivity, pruritus, itching, rash, rhinorrhea, sore throat, dermatographism, SLE, pharyngitis, GI infections, genitourinary infections, respiratory infections, fungal infections, dermatophytosis, malaria, amebiasis, hepatitis, mononucleosis, coxsackievirus, mycoplasmal infections, scabies, parasitic infections, ascariasis, schistosomiasis, strongyloidiasis, trichinosis, food allergies, penicillins, sulfonamides, salicylates, NSAIDS, codeine, pollens, chemicals, danders, dust, mold, latex, pruritic urticarial papules and plaques of pregnancy, PUPPP, cholinergic urticaria, hyperthyroidism, rheumatoid arthritis, polymyositis, amyloidosis, polycythemia vera, carcinoma, lymphoma, cold urticaria, cryoglobulinemia, cryofibrinogenemia, syphilis, connective tissue disorder, urticaria pigmentosa, Darier sign, solar urticaria, aquagenic urticaria' (Scott & Crawford, 2006)

### *Anaphylaxis*

- 'Synonyms and related keywords: allergy, allergic reaction, anaphylactoid reaction, urticaria, angioedema hypersensitivity, hypotension, bronchospasm, pruritus, dizziness, myocardial ischemia, wheezing, [...] Background: Anaphylaxis refers to a severe allergic reaction in which prominent dermal and systemic signs and symptoms manifest. The full-blown syndrome includes urticaria (hives) and/or

angioedema with hypotension and bronchospasm. The classic form, described in 1902, involves prior sensitization to an allergen with later re-exposure, producing symptoms via an immunologic mechanism. An anaphylactoid reaction produces a very similar clinical syndrome but is not immune-mediated. Treatment for both conditions is similar, and this article uses the term anaphylaxis to refer to both conditions unless otherwise specified. Pathophysiology: Rapid onset of increased secretion from mucous membranes, increased bronchial smooth muscle tone, decreased vascular smooth muscle tone, and increased capillary permeability occur after exposure to an inciting substance. These effects are produced by the release of mediators, which include histamine, leukotriene C4, prostaglandin D2, and tryptase.' (Krause 2005)

### ***A candidate for nexial-topologic topographic modelling: bronchial asthma***

- 'The ancients considered asthma a guarantee of long life, certainly! But in France nearly 2 000 asthmatic die each year because of their disease.' (Godard et al. 1998) [Les anciens qualifiaient l'asthme de brevet de longue vie, certes! Mais en France près de 2 000 asthmatiques meurent chaque année du fait de leur maladie.]
- 'The geometry and dimensions of branched structures such as blood vessels or airways are important factors in determining the efficiency of physiological processes. We present a study of the compatibility between physical optimisation and physiological robustness in the design of the human bronchial tree... Our results suggest that bronchial malfunction related to asthma is a necessary consequence of the optimised efficiency of the tree structure.' (Mauroy et al. 2004)
- 'Asthma, a chronic inflammatory disease of the airways involves activation of various cell types and development of various degrees of post inflammatory healing and repair processes which remodel the airways. The short duration of the severe episodes is clearly related to the degree of inflammation but the natural history of the disease itself remains unclear. Treatment must take into account the fact that clinical expression varies.' (Bousquet, et. al. 1996)
- 'Curiously enough, a kind of curse combined with therapeutic fatalism still hovers over bronchial asthma[...] In the past, this condition may not have been recognised for what it is, that is to say a multi factorial syndrome resulting from the innate and the acquired, from specific (allergic) and/or non-specific factors. [...] asthma is an inflammatory illness of the bronchi provoked by the liberation of mediators. [...] If bronchial asthma remains under-diagnosed and under-treated in France and in Europe it is due to the fact that the artificial distinction between paroxysmal (bronchitis called "asthmatic"), and persistent (that is to say a so-called asthmatic illness), is often maintained.' (Michel et al. 1986)

### ***Chronic Obstruction Lung Disease***

'COPD is the new name for emphysema and chronic bronchitis. Chronic Obstructive Pulmonary Disease is a long-term lung disease' that makes it hard to breathe because:

- the tubes (airways) and air sacs in your lungs lose their shape and stretchiness = turn to fiber
- the walls of the alveoli become thick and swollen, = swell
- cells in the airways are irritated and red make too much sticky mucous. = Red
- the walls between many of the air sacs are destroyed

(Summarised 9-August-2006 from Canadian Lung association 2006)



These topographic elements (tubes, sacs boundaries and walls, thickness), nexial elements (red, sell, sticky), and topologic elements (shape and stretch), make this disease a good candidate for nexial-topologic modeling of ‘deployment’, with asthma and repeated dry cough as its early stages.

### **Similarities**

- ‘Many of the symptoms of CFS are consistent with a host response to pathogenic challenge. We are focussing on proteolytic response, or catabolism, which involves muscles, acting as a protein reservoir, which release amino acids to fight infections and to build new materials when needed. This well documented response is seen in trauma, infection, stress, certain genetic anomalies, acquired disease states and cancers. There are two types of storage reservoirs, the fibrillar reservoir... and the the non-fibrillar reservoir... When the non-fibrillar response is insufficient to meet demands, the fibrillar response is switched on like a backup system... (p.22) [...] In many patients we see the amono-acid 3-methyl-histidine, which is the marker of this fibrillar response... So, using well documented markers of metabolism, we have found that the body is responding to some prolonged, traumatic, perhaps infectious challenge We find in most patients that the leucine level is very low, sometimes undetectable, meaning that catabolism will be sustained. [...] So we can begin to explain some of the digestive problems and some aspects of nutrient deficit in long term patients... Some clinicians use betaine HCl as that might be appropriate to assist in the improved efficiency of absorption of nutrients.’ (Dunstan 2001 p.22-23)

- ‘It is becoming more and more evident that Dr Levine is right when he says that stress, whether chemical, physical, infectious, viral or emotional in origin can deplete our defences to the point that we suffer an increase in inflammatory, infectious and degenerative diseases. There is not one cause for an illness like Chronic Fatigue Syndrome. There are many causes and each individual may have a different range of causes that produce a different range of symptoms... Patients have to learn to ask the right questions.’ (p.15) [...] ‘Anything that affects our nervous system is likely to affect our immune system as well. And it often works the other way around. [...] The brain is, of course part of what we call the “central nervous system” and disturbances of that system can give rise to physical neurological and mental symptoms and illnesses ranging from peripheral body neuropathy...’ (Vayda 199 p.112)

- ‘Euthyroid Sick Syndrome is... not considered to need treatment because there are no symptoms and the tests go back to normal when the stressful illness has passed. Wilson’s Temperature Syndrome causes severe low thyroid symptoms and is undiagnosable with thyroid blood tests. The symptoms can persist for years after a stressful illness and can worsen with subsequent stresses.’ (Willson 2005)

[Note: Wilson’s Syndrome: invisible symptoms, but feel sick; Euthyroid: visible symptoms, but do not feel sick]

	Euthyroid Syndrome:	Wilson’s thyroid Syndrome:
Thyroid blood tests	always abnormal	typically normal
Low thyroid symptoms	no symptoms	severe symptoms

‘Wilson’s Thyroid Syndrome is often reversible... Low body temperatures as well as other signs and symptoms of low thyroid function, which are unexplained by thyroid blood tests, characterize Wilson’s Thyroid Syndrome... Stress ....can especially bring on the symptoms....The Treatment ... involves the use of pure T3 powder mixed with a sustained release agent... patients take increasing doses according to the schedule and their signs and symptoms. ... Sometimes more than one cycle of treatment is needed. Comment: re-establishing operational set point for body temperature. ....A person can be given enough T3 to capture her temperature and reset her system... The principle T3

replacement therapy in order to reset the system well enough for it to begin functioning properly on its own again.' (Dunstan 2001 p.22-23)

- 'In recent years terms such as 'syndrome X', 'cluster diseases', '5H syndrome', 'metabolic syndrome', 'multiple risk factors' and 'diseases of civilization' have made their way into the scientific literature. Many health risk factors and disease states are beginning to be recognized as connected by common characteristics... chronic elevated circulating insulin is common in arteriosclerosis, essential hypertension, non-insulin dependant diabetes mellitus, some forms of obesity, some forms of cancer, cardiovascular disease and some forms of stroke.' (Heller et al. 1996)
- 'So many patients are not diagnosed for years, due to overlooking a few of the simple tell-tale symptoms of a Pituitary Disorder [and tumors]: Headaches, Depression, Mood/Emotion Swings, Anger, Loss of Memory, Loss of Sleep,...' (Pituitary Network Association 2006)

#### *Akathisia and restless leg*

- 'Akathisia manifesting as violence [...] and suicide' (Sachdev 1995 p128-129) and with 'subjective manifestations [...] and] objective feature.' (op. cit. p130) 'Neuroleptic-induced dysphoria [...] is marked by] slowing of thinking and movement... paralysis of volition... [without] sleepiness or sedation, severe anxiety' (op. cit. p47) 'In postencephalic parkinsonism... symptoms [are categorized into] paraesthesiae (burning, coldness, tingling and numbness)... and pain (poorly localized painful sensations without thermal or anaesthetic characteristics and not associated with increased muscle contraction or affected by movements or pressure). The pathogenesis of these symptoms is not understood. (op. cit. p51). 'The effect of activating maneuvers [...] The performance of voluntary movements, especially those involving concentrated effort, affects the manifestations of involuntary movements. Movements like tongue protrusion, finger tapping, or walking (1) may bring out movements not otherwise apparent. [...] It is our observation that the movements of AA [acute akathisia] are usually diminished, and may disappear completely, during such activities. [...] The adjective *activating* has been retained to describe these manoeuvres, in the case of akathisia they tend to produce the opposite effect, ie, diminishing or suppressing the movements... during the motor task.' (Sachdev 1995 p 133).

#### ***Systemic aspects of chronic ill health: many causes***

- '*Brain and Central Nervous System symptoms* include cognitive dysfunction, clumsiness, disequilibrium likened to 'walking on rubber', and word finding abilities. Problems with control of the autonomic nervous system results in palpitations, sweating episodes and symptoms associated with low blood pressure/postural hypotension.' (Myalgic Encephalomyelitis Society of America 2004) [Expressive aphasia is the diagnosis for those having difficulty remembering words, naming objects or expressing ideas. ]
- "The cleavage of poly (ADP-ribose) polymerase (PARP) is an essential link in the apoptotic pathway in animal cells, plant cells however, results suggest that apoptosis in plants and animals may share common mechanisms.' (Tian, et al. 2000)
- '[...] oxidation of glucose requires less oxygen per mol of ATP generated, and thus is preferable to fat oxidation when oxygen availability is limiting... chronic use of these drugs [new anti-anginal drugs] can be expected to increase body fat stores until the original rate of fat oxidation is restored by mass action,... exacerbating the manifold adverse effects of insulin resistance syndrome...[With] a very low fat quasi vegan diet (i.e., 10% fat calories)... a reduction in diurnal insulin secretion might also be achieved, which would be expected to decrease sympathetic activity.' (McCarty 2004 p.62)
- 'For more than 2000 years philosophers, scholars and physicians attempted to discover the bodily cause of hypochondria... Modern investigators have attempted to understand the older theories but have been confused because there have been changes in language and word usage, and when current translations are made, the ideas do not seem to make sense, consequently most of human history's knowledge, experience, evidence and ideas on this subject have been lost.' (Bansfield 1996)

- 'In civilized communities, better sheltered, less exposed, and with the aid of the ablest professional skill, the sanitary conditions of mankind, with its variety, its complications, and fatality of diseases – its aches and pains, and mental and physical deformities presents lamentable and mournful list, which plainly indicates the existence of some extraordinary latent cause, not yet as sufficiently appreciated, and which it is the sole object of this little work to expose.' (Catlin 1870 p.1)

[...] 'I have also extended my visits and my inquiries into the tribes in the same latitudes, living in their primitive State, and practising their native modes, I offer myself as a living witness, that whilst in that condition, the Native Races in North and South America are a healthier people, and less subject to premature mortality (save from the accidents of War and the Chase, and also from Small-pox and other pestilential diseases introduced amongst them, than any Civilized Race in existence [in 1870]. (op. cit. p.2)

'But when we turn to civilized life with all its comforts, its luxuries, its science, and its medical Skill, our pity is enlisted for the tender germs of humanity, brought forth and caressed in smothered atmospheres which they can only breathe with their mouths wide open, and nurtured with too much thoughtlessness to prevent their contracting a habit which is to shorten their days with a croup in infancy or to turn their brains into Idiocy or Lunacy and their spines to curvature—or in manhood their sleep to fatigue and the nightmare, and their lungs to premature decay.' (op. cit. p.5)

[...] 'This cause I believe to be the simple neglect to secure the vital and intended advantages to be derived from quiet and natural sleep.' (op. cit. p.4)

'Besides the list of fatal diseases already given, and which I attribute chiefly to the pernicious habit which I have explained, sleeping with the mouth open, there are other results affecting the senses, personal appearance, and the enjoyments of life, which though not fatal, are themselves of sufficient importance to demand its correction; such as Curvature of the Spine, Idiocy, Deafness, Nightmare, Polypus in the nose, Malformation and premature decay of the teeth, Toothache, Tic-douloureux, Rheumatism, Gout and many others.' (op. cit. p.9)

- 'The "dry mouth" is the very last sign of dehydration. The body can suffer from dehydration even when the mouth may be fairly moist. Still worse, in the elderly, the mouth can be seen to be obviously dry and yet thirst may not be acknowledged and satisfied.' (Batmanghelidj 1997 p. 18)

'Products manufactured in the brain cells are transported on "waterways" to their destination in the nerve endings.' (op. cit. p.19)

'The histamine directed and operated neurotransmitter system becomes active and initiates the subordinate systems that promote water intake. These subordinate systems also redistribute the amount of water in circulation or that can be drawn away from other areas. Subordinate systems employ vasopressin, renin-angiotensin, prostaglandins and kinins and the intermediary agents.' (op. cit. p.19) (see also histamine as an integrator of the perceptual body schema)

- 'It has long been recognized that the performance of voluntary movements especially those involving concentrated effort, affects the manifestation of involuntary movements. An examination of dyskinetic movements in TD is instructive. Movements like tongue protrusion, finger tapping or walking may bring out movements not otherwise apparent. The movements of AA are usually diminished, and may disappear completely during such activities. While the adjective *activating* has been retained to describe these manoeuvres, in the case of akathisia they tend to produce the opposite effect ie diminishing or suppressing the movements a reduction of akathistic movements during a motor task.' (Sachdev 1995 p.133).

- 'Thus, the human body cannot intelligently be regarded as embodying an homunculus residing in the tower of the cranium, impervious to the physiological matriculations of the "baser" body.' (Shane & Cooper 2005)

- 'food affects mental well being and behaviour' (Van de Courtney 2005)

***Physical names: key words for a 'meta-condition', 'super-syndrome' of instability***

Here is a list of names gathered from the literature, for syndromes that have many similarities and overlaps.

Metabolic syndrome, syndrome X, cluster diseases, fibromyalgia, myalgia encephalitis, chronic fatigue immuno-dysfunction syndrome, allergies, hypersensitivity syndrome, irritable bowel syndrome, multiple chemical sensitivity, idopathic environmental intolerance, candida syndrome, burnout syndrome, sick building syndrome, repetitive injury syndrome, carpal tunnel, functional syndromes, subclinical nutritional deficiency syndromes, 'hidden hunger', silent illness, stress syndromes, inflammatory syndromes, adaptation diseases [General Adaptation Syndrome (Selye 1956) , Specific Adaptation Syndrome (Randolph 1956)], diseases of civilisation, diabetes type 1, hypoglycemia, pain syndromes, side effects of implants (or of drugs or surgery), behavioural syndromes, Wilson cold syndrome, chronic multisymptom illness, 20<sup>th</sup> century syndrome, autonomic dystonia.

These names are reformulations of other names that have appeared since the medieval period: female depletion, exhaustion, consumption, or wasting, or green disease, chlorosis, diseases of virgins, etc. (see Furth 1999 and King 2004 in particular), and conditions related to coughing (see Despeux & Obringer 1997). More recently, in the modern period, these conditions took on more specific names, related to the namer's perspective (eg interest in nerves, behaviour, immune system, pain, female physical nature, etc.): asthenia, myasthenia, neurasthenia, melancholia, bipolar disorder, cylothymia, hypothymic, hypochondriasis, hysteria, menstruation disorders, menopause, andropause, ageing, Kundalini syndrome.

- ' OBJECTIVES: The aim of this study was to evaluate the effects of exercise training and body-awareness training in female patients with Syndrome X. BACKGROUND: Patients with Syndrome X, defined as effort-induced angina pectoris, a positive exercise test and a normal coronary angiogram, suffer from a chronic pain disorder. We hypothesized that this disorder results in physical deconditioning with decreased exertional pain threshold. [...] RESULTS: Body-awareness training did not change the pain response. [...] Thus the pain-response-to-exercise curve was shifted to the right. [...] CONCLUSIONS: Physical deconditioning with lower exertional threshold for pain is a prominent feature in Syndrome X. [...] We suggest physical training as an effective treatment in Syndrome X.' (Eriksson et al. 2000)

- 'The disease of adaptation deals with maladies [...] which we consider to result largely from failures in the stress-fighting mechanism.'; (Selye 1976 p. xviii – my italics)

### ***Confusing syndromes – clinical and sub-clinical –, 'silent'***

Definitions of 'subclinical' (summary from various sources):

'without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical

examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality'; 'relating to the stage in the development of a disease before the symptoms are observed'; 'of an infection: one that produces no material pathological changes or that produces minor pathological changes'; 'pertaining to a disease, in which manifestations are so slight as to be unnoticeable'.

- 'Scurvy is a disease caused by vitamin C deficiency. It is characterized by poor wound healing, soft and spongy bleeding gums, edema, extreme weakness, and "pinpoint" haemorrhages under the skin.... More common are signs of lesser degrees of deficiency, including gums that bleed when brushed; increased susceptibility to infection especially colds and bronchial infections; joint pains, lack of energy; poor digestion; prolonged healing time; a tendency to bruise easily; and tooth loss.' (Balch p.18)
- 'Vitamin D: The Photolytic Reaction – Vitamin D should be reclassified as a hormone since it is only under conditions of inadequate exposure to sunlight that dietary intake is required. Vitamin D is in fact a group of closely related sterols produced by the action of ultraviolet light on certain provitamins, ergosterol in plants and 7-dehydrocholesterol in animals. The latter is synthesized in the liver and is found in the skin. The products of the photolytic reaction are ergocalciferol (vitamin D<sub>2</sub>) and cholecalciferol (vitamin D<sub>3</sub>) respectively...both being further metabolized, converted to a series of hydroxylated derivatives ...in the liver and in the kidney, producing the active compound...Vitamin D [...] it is transported to the liver in chylomicrons. [...] The main site for further hydroxylation at the 1-position is the renal tubules, and although bone and the placenta can also carry out this reaction ...the most potent of the vitamin D metabolites and the only naturally occurring form of vitamin D that is active at physiologic concentrations..can maintain normal serum Ca in animals that do not have kidneys or parathyroid glands.' (Baynes & Dominiczak 1999 p.112)
- 'Subclinical pellagra, the hidden disease caused by a deficiency of niacin (vitamin B-3), produces symptoms similar to those of hypoglycaemia (low blood sugar).' (Pfeiffer 1975 p.411)
- "Wastebasket diagnoses" abound in medicine and psychology. [...] Biological science is at best only a progress report, so the "wastebasket" of today may be the goldmine of tomorrow. [...] The pediatrician has a simple label for some cases, namely "failure to thrive". This "without prejudice" labelling highlights the fact that it is the doctors job to find out why the patient doesn't thrive.' (Pfeiffer 1975 pp. xvii-xviii)
 

'The etiology of malnutrition may be divided into two categories, primary and secondary. [...] Secondary malnutrition is due to factors interfering with the ingestion, absorption, or utilization of essential nutrients, or to stress factors that increase their requirement, destruction, or secretion.' (op.cit. p.4)

'The schizophrénia have retained the unfortunate status of "wastebasket" or hopeless cases. [...] many syndromes which "mimic" schizophrénia exactly.. (op.cit. p.396).

[...] 'Eight syndromes are chemically-induced metabolic disorders, which suggested the strong possibility that the "true" schizophrénias left in the "wastebasket" might also be due to biochemical abnormalities. ...in 1996 Pfeiffer and Lliev ...showed the possible role of histamine, an amine found in all organic matter and, most notably in the brain. [...] they established two major categories of schizophrénia, low histamine and high histamine' (op.cit. p.397)

'[...] Lysosomes, small organelles inside the cells, are concerned with cellular digestion, protein turnover, tissue remodelling, and autolysis of dead cells. They may take part in the cellular aging process by causing damage to the cell, by damaging extracellular structures through enzyme activity, or by an inability to perform their digestive function. ' (op.cit. p.446)
- 'Health is not the absence of illness in Jean Lebel's perspective.' (Lebel 2003, foreword, p.viii).  
'Instead of targeting the small fraction of the population that is severely affected by a given illness – and achieving a very relative success rate – the aim is to attack the root cause of health problems and

thereby protect a larger number of people from illness – Figure 5: The health pyramid: [increasing number of cases – illness: the tip of the iceberg; Subclinical cases: long-term effects; State of well-being.] (Lebel 2003 p.42)

- 'There is increasing evidence that the development of atherosclerosis is associated with inflammation, and increased levels of inflammatory markers have been documented in various settings of coronary artery disease. Patients with chronic and stable artery disease have clear evidence of a low-grade inflammation, which is independent of traditional cardiovascular risk factors. More recently, intriguing observations have shown that there is a particular bio-chemical pattern of inflammatory system activation (an increased production of inflammatory cytokines) that explains the lack of anginal symptoms in patients with myocardial ischemia.' (Li Jian-Jun, 2003 p.252-256)
- 'One Differential diagnosis for Hypochondriasis is undifferentiated somatoform disorder. This is characterized by the presence of one or more clinically significant, medically unexplained somatic symptom or symptoms lasting for 6 months or longer. Proposed alternative terms for this disorder include subsyndromal, forme fruste, or abridged somatization disorder. Some patients meet the criteria for somatization disorder upon follow-up evaluation.' (Hilty & Marks 2005)

### ***Hidden Hunger (learning from plants)***

#### *Auto-Cannibalisation:*

Nutrient deficiency relates to advanced nutrient lack or deficiency of macro-nutrients.

Nutrient stress relates to early nutrient lack, before visible symptoms appear.

- 'Hidden hunger' in plants relates to micro-nutrients whose absorption is connected to water. In humans, the term 'hidden hunger' has undergone a semantic drift and is used to describe nutrient deficiency of macro-nutrients (zinc, iron, iodine, vitamin A...), that results in malnourishment symptoms (anemia, retarded growth and cognitive difficulties), a less obvious condition than the outright malnutrition described in the seventies that killed people more quickly. Nutrient deficiency is considered a root of 'cluster illnesses' (syndrome X, metabolic syndrome, inflammation syndrome, insulin resistance). (summary from various internet sources)
- 'In extreme cases the imbalance can set off a chain of events resulting in the plant feeding off the nutrient reserves in its own cell walls to ensure kernel development... The cannibalization weakens the plant, inviting disease.' (Huber 2004)
- 'In plants, there exists a period of nutrient stress before visible symptoms appear that is commonly referred to as "hidden hunger". 'Nutrient stress' in plants, leads to alteration of gene expression and, if allowed to progress to 'nutrient deficiency', to fungal diseases.. Visually obvious symptoms of nutrient deficiency occur after it is too late to remedy the situation.. Nutrient stress can be 'immunodetected' .' (Gray 2004) [relates to cytokins]
- 'A rising tide of carbon dioxide could spark an epidemic of malnutrition in a world overflowing with food. [...] We've known for some time that the amount of available CO<sub>2</sub> is what puts the brakes on photosynthesis. Raise CO<sub>2</sub> levels, and you increase photosynthesis, and hence plant growth can run riot.' (Lawton 2002 p..26)
- 'Nutrient balance is a very important aspect of nutrient availability as combinations of nutrients can synergize and/or antagonize uptake of another nutrients both minor and major (Diagram 1). The addition of a particular nutrient may have a positive or negative effect on the availability of another nutrient.' (TJ Technologies 2004)
- '[...] the clinical findings of progressive dehydration and emaciation. The gastrointestinal tract was empty and gastric ulcers and melaena were frequently present. Other common findings included small livers, enlarged adrenals and pitted kidneys.' (Clausen et al. 1992)



... 'nature and origin of vacuoles in kidneys and liver unknown' ... possibly 'autophagy, amino-acid catabolism and gluconeogenesis'... development of a state of chronic nutritional exhaustion... age and *initial* weight loss significant factors

'strongly support the hypothesis of a close relationship between the increased nutritional demand for continued milk production at a high level and the development of clinical signs of the disease.' ... '... related to an unknown complex of nutritional, metabolic and environmental factors, which in turn, may influence the ability and capacity to meet the extreme demands for energy turnover...' (op.cit. p.94)

- 'Cachexia...involves catabolic substances generated by the tumor or by the body's reaction to it. For example, inflammatory mediators such as cytokines. (eg interleukins and tumor necrosis factor) and a recently identified substance produced by cancer tissue known as proteolysis-inducing factor. [...] clinicians treating cachexia must measure not just weight, but also muscle mass. They [trials] also remind us how difficult it can be to get patients to consume enough supplement. [...] cancer cachexia is characterised by higher rate of protein turnover and breakdown, in part due to failure of fat utilisation to adequately 'spare protein' in energy metabolism.' (Helman 2003 no171 p.3)

### ***Names for signs of 'in-dying' (distress)***

A number of signs appear when reaching the extremes necessary to entrain the survival mode and correspond to 'signs of death' (announcing death in a grave disease) or 'signs of dying' (seen during the process of dying). In low-grade conditions, signs appear when establishing the alert-adapted mode, which are similar in nature although not in order of intensity (lesser and undiagnosable degree). They are signs of stress-hard work (chronic), or of strain-distress (acute), of 'in-dying', such as difficulty swallowing, kidney and water metabolism problems, loss of appetite, dry mouth, swollen sphenoid sinuses (in older people, children, women), swollen throat, visual blurring, need for supplementary oxygen, etc.. In my case, they signal the sense of 'extremity' (approaching boundary – see <Nexial topologic deployment> chapter), and the sensation of psycho-physical 'in-dying' that I associate with the activation necessary to reach and establish the chronic alert-adapted state, as well as with the exhausted state ('hyper-' and 'hypo-' both feel like 'in-dying': survival activation, or loss of integrity, physical and otherwise, under [dis-]stress. Some signs are found described in traditional literatures of the yogic type, and as part of the 'normal' state in Western medicine (eg alternate nostril breathing, studied by scientists in the latter 20<sup>th</sup> century, but less now, it seems), or only found in archaic literature relating to women – if it is interpreted physically – (eg rib pain on right side – see <Extracts F17\ Anatomy notes>, red spot on forehead – see <Extracts F11\ Red>). The established state only lasts for a time: it is never quite permanent, but may last for weeks or months, and can even be *apparently*

maintained for years if there is chronic drug or food-based activation, which is the case of most people (eg coffee, contraceptive pill). [The word ‘apparently’ means that stability is apparent, but there is an increase in invisible damage that is usually attributed to ageing.]

Internal signs of ‘in-dying’, of tissue instability, are variously attributed depending on the object or subject: (metabolic, physiologic, molecular, cellular, etc., or personal):

### ***Names for tissue instability, for ‘in-dying’***

Depending on the body parts affected, the damage and wasting inflicted by instability takes many names (gathered from literature and daily colloquial expression):

- proteinuria (protein breakdown), proteolysis, autolysis of dead cells, proteolytic response, negative nitrogen balance, catabolism, catabolism of non-fibrillar and fibrillar reservoirs, cachexia, apoptosis, auto-cannibalisation, autophagy; ‘hidden hunger’, nutrient deficiency or lack, nutrient stress, nutrient imbalance, cortisol damage and their related causal or resulting lack of oxygen: hypoxia, ischemia; fibrotic changes, tissue remodelling, scarring, fibrillar response; ‘damage’, wasting, ‘consumption’, emaciation, ‘cold disorder’, ‘bone steaming’, ‘signs of dying’ or ‘early signs of death’, auto-immune disease, failure to thrive, disease of maladaptation, sickness behaviour; “surviving on my reserves”, “exhausted body resources”, “eating myself up from inside” [usually labelled ‘anxiety’], “eating my body substance to fuel (activity, brain), to cope”, “melting away”, “I am preparing a real [or big] disease”.
- ‘Chronic fatigue syndrome is controversial not only with respect to its possible causes but even concerning whether it is a disease. Even the name is controversial. In the past, the disorder has been given such names as *chronic Epstein-Barr virus syndrome* and *post-viral fatigue syndrome*; in Great Britain and elsewhere, it is called *myalgic encephalomyelitis*; and some researchers and patients prefer the name *chronic fatigue/immune dysfunction syndrome (CFIDS)*. Even more than the other cases I have discussed, chronic fatigue syndrome illustrates the vicissitudes of causal reasoning in medicine. [...] this multiplicity of symptoms causes great problems in diagnosing the disorder. Bell (1995, pp. 17f) draws an analogy with AIDS. The parallels in history of the recognition of AIDS as a specific disease and the recognition of CFIDS are remarkable. For years physician and health care administrators said that no illness could explain fatigue, weight loss, lymph node cancer, unusual parasitic pneumonia, and the purple spots of Kaposi’s sarcoma. Because patients with AIDS were dying, it was finally and somewhat reluctantly agreed that this constellation of unusual symptoms and events was not psychosomatic. And with the discovery of the HIV virus, a theory could be put forward that explained these findings. No similar theory has emerged to provide a unified account of why people get chronic fatigue syndrome.’ (Thagard 1999 p.127)

### ***Salmon (learning from animals)***

- ‘Total cortisol, free cortisol and percent free cortisol were all significantly higher in semelparous male Chinook salmon *Oncorhynchus tshawytscha* than in iteroparous and immature fish. The findings suggest that the regulation of both total and free cortisol concentrations may play key roles in mediating the post-spawning death of semelparous salmon. It is generally accepted that highly elevated cortisol levels mediate the post-spawning death of semelparous *Oncorhynchus tshawytscha* salmon by causing tissue degeneration suppressing the immune system, and impairing various homeostatic mechanisms (Dickhoff, 1989; Stein-Behrens & Sapolsky, 1992). However, hypercortisolism alone may not fully explain the mechanism of programmed death because total serum cortisol levels can be elevated in semelparous fishes at other life cycle stages without causing

significant mortality...that there is not necessarily a large evolutionary jump between semelparity and iteroparity. Indeed, the present results suggest that modifications in only a few key physiological thresholds, such as the regulation of cortisol negative feedback or cortisol binding protein levels, may be all that is necessary for iteroparity to appear in an otherwise semelparous population, and vice versa. The cause of such a shift, and its evolutionary significance are unknown, but somehow may be linked to the anadromous life cycle.' (Barry, Unwin & Quinn 2001)

'Anadromy is generally associated with high growth rate, early age maturation and lower probability of repeat spawning. These life history traits vary within the family, ranging from fully freshwater, iteroparous, long-lived species such as lake trout (*Salvelinus namaycush*) to invariably semelparous, short-lived anadromous species such as pink salmon.' (Unwin, Kinnison & Quinn 1999)

- *An email exchange:*

*Bouchon:* 'Do you know if anyone if anybody has tried modelling the salmon physio-biochemistry or ecological trends by using topology? '

*Unwin:* 'I don't know but I suspect the answer is almost certainly no. Anything topological in the salmon ecology literature would have caught my eye.' (Martin Unwin 31 January 2004, personal communication).

## Part 3: The H-clinical viewpoint

### **'Not well understood', unclear, unexplained**

- 'Optimal nutrition increases the ability to combat other influences. Our exploration of "hidden" stresses that have attracted very little attention points up how much is yet unknown about the many sources of emotional distress.' (Cheraskin & Ringsdorf p.132)

'Just as nutrition has generally been overlooked for many years as a factor in mental stability, so has exercise.' (Cheraskin & Ringsdorf p.140)

- 'Chronic fatigue syndromes (CFS) present a very difficult dilemma for both sufferers and health professionals. Particularly important is the notion of not blaming the victim....Pyrogens are substances from outside the body (exogenous) or from inside the body (endogenous) which generate fever. These are largely gram negative bacteria (endotoxins) and can result in mediator cytokine release ... monocytes and macrophages, fibroblasts and glial cells....Fever can make it easier for the body to deal with microorganisms by impairing microorganism growth. There is, however, an energy loss to the host as a 1°C temperature increase, increases oxygen requirement by 13%, as well as increasing catabolism and caloric and fluid requirements.' (Graham 2001)

- 'Chronic fatigue syndrome (CFS) is an illness...often accompanied by numerous symptoms involving various body systems. The etiology of CFS remains unclear, however, a number of recent studies have shown oxidative stress may be involved in its pathogenesis [...] Food intolerance may be involved in CFS symptom presentation and ...[oxidation via cytokine induction].' (Logan & Wong 2001)

### **Syndrome Names**

- 'The condition I have is called RNase Enzyme Deficiency Disease (I love the acronym: REDD). It is thought to be either fully or partially responsible for a host of illnesses, including multiple sclerosis, myalgic encephalomyelitis, ALS, inflammatory rheumatoid arthritis, Gulf War Syndrome, fibromyalgia, to name a few. [...] Although the condition is often still called CFIDS... [...] RNase is an enzyme produced by the human body when it is attacked by viruses or bacteria. As the name implies, RNase denatures messenger RNA wherever it find its. as it comes in contact with the invading virus or bacteria, it destroys its RNA and thus kills the invader. This is a very quick-acting defense mechanism,

unlike the slower production of T cells, B cells, etc. [...] In REDD, the mechanism that produces RNase is damaged, [...] the body begins producing a shortened but highly active form of RNase [that] has no turn-off mechanism... which then proceeds to attack the RNA in literally every cell in the body. [...] It is considered a definitive test and a definite clinical entity. [...] If brain tissue, the result is myalgic encephalomyelitis, functionally indistinguishable from MS.... [...] The third phase begins when the cumulative damage to various tissue systems starts to take a toll.[...] The basic symptom is "hypoxia," or lack of oxygen in the cells (due to damaged mitochondria), so you feel like you are suffocating most of the time, and you're often bedridden around the clock (literally). Also fortunately for me, this means mega meditation. it also means depression, sadness, and pain, not so much for the pain in this body, but the pain of what this body can't do. [...] (Interestingly, REDD damages the aerobic system, and not so much the anaerobic system—which is why, although I didn't know it at the time, I stopped jogging and starting weight lifting.) [...] Fortunately, I had cultivated a lifestyle that never required a body. [...] Much of the time I am fortunate, and there is radiant sahad, with a painful body spontaneously arising in an ocean of blissful emptiness. At other times, there is just the painful body. In all cases, my I is free and radiant, but my me is fucked, [...] Much of this information... has only been discovered in the last 5 years or so, which is why I previously didn't talk about it per se— I didn't know "it" was an it. [...] As for what specifically triggers the damaged RNase, nobody knows, although environmental toxins are a leading factor.' (Wilber 2002)

- 'I have included all the many names that I have found for the syndrome first named neurasthenia in April 1869, up to the most recent proposal of Chronic Neuroendocrineimmune Dysfunction Syndrome. The dates refer to the year of the earliest (and often only one) published paper I could find that defines the disease.' Among these over one hundred names are: Fibrositis, Heat, Cold and Effort Sensitiveness, Specific Adaptation Syndrome, 20th century syndrome, many names for neurasthenias, myalgias, fatigues, dysautonomias, syndromes related to encephalomyelitis, allergy, battle, related to hypochondriasis, neuroses and mental illness, Idiopathic Hypoguesia., and Chronic Habitual Hyperventilation Syndrome.' (Donnay 2002)

- 'When one hears about another person's physical pain, the events happening within the interior of that person's body may seem to have the remote character of some deep subterranean fact, belonging to an invisible geography... Laden with consequence yet evaporating before the mind because not available to sensory confirmation, unseeable classes of objects such as... the pains occurring in other people's bodies flicker before the mind, then disappear.' (Scarry 1985 p.2-3)

'This book is about the way other persons become visible to us, or cease to be visible to us. It is about the way we make ourselves... available to one another through verbal and material artifacts,...' (op. cit. p.22-23)

### ***Names that denote many perspectives of understanding***

Following, is a list of words collected from the literature, that are qualificatives given to various clusters of symptoms of the syndromes of instability:

- *unexplained*: 'unexplained by physical causes', 'causes not well understood', 'etiology unclear', 'cause unknown', 'unexplained physical symptoms', somatoform disorder not otherwise specified (NOS)

- *non-localised or generalised*: 'causing vague and diffuse symptoms', 'non-specific symptoms', 'undifferentiated somatoform disorder', 'syndrome X', 'systemic symptoms', 'clustered symptoms' (classified, for example as neurological, endocrine, immune symptoms, or anatomically – eg fibromyagia),

- *N2d-N3p names*: Specific Adaptation Syndrome (Randolph 1956) (disorder in specific adaptive reactions), side-effects of drugs, surgery, and breast implants, General Adaptation

Syndrome (Selye ©1956, revised ed. 1976) (a general 'damage syndrome' or 'strain'), often interpreted internally as 'caused by' stress and externally, behaviourally as 'maladaptation to' stress.

- *unfounded 'sickness behaviour'*: 'illness without signs', 'hypochondriac', 'hysterical', 'it's all in your mind', 'it's all in your head', 'paying too much attention to symptoms'
  - *'normal' damage*: 'It's ....' ageing, menopause, female weakness, side effects of menstruation, 'children grow out of it'
  - *instability*: [in-out] sensitivity, allergy and other immune reactions, maladaptation
  - *cyclic, repetitive or bimodal*: cyclothymia, repetitive injury syndrome, depression and anxiety, fatigue and stress, melancholia and hysteria, bipolar disorder (mania and depression),
  - *Hidden*: subclinical nutritional deficiency, silent illness, silent hypoxia or ischemia, 'hidden hunger,
  - *failure of vertical control*: attributed to inflamed brain or disturbed mind, psycho-social maladaptation or stress, hypothyroidism, dysthymia, neurally mediated hypotension, personality disorders
  - *names inspired by 'cryptic core culture'*: *Heat, Cold and Effort Sensitiveness*, hypochondriasis, Wilson cold syndrome,
  - *operational names*: metabolic syndrome, functional somatic syndromes (Barsky & Borus 1999), functional syndromes, stress syndromes, burnout syndrome, hypoglycemia, diabetes type 1, insulin resistance, conversion reaction, pain disorder, cluster diseases (occurring in location clusters, population clusters, or in a family 'by mimicry'), irritable bowel syndrome, Kundalini syndrome (Sanella 1979 and 1987, Grof & Grof - obtained 1997)
  - *connective names*: conversion disorder, somatoform disorders (Wiesmüller et al. 2003), somatisation, psycho-somatic, body dysmorphic disorder, personality disorder
- spreading names: candidiasis (candida syndrome)

### **Names and synonyms**

- 'As with all psychiatric disorders, the somatoform disorders demand creative, intricate biopsychosocial treatment [...] Hypochondriasis and the other somatoform disorders are among the most difficult and most complex psychiatric disorders to treat in the medical setting. Because of many new developments in this field, diagnostic criteria have been revised to facilitate clinical care and research, and more empirical research is being performed. [...] Some degree of preoccupation with disease apparently is common; 10-20% of people who are healthy and 45% of people without a major psychiatric disorder have intermittent, unfounded worries about illness (Kellner, JAMA, 1987). [...] Hypochondriasis is usually episodic [...] Hypochondriasis is classified as one of the somatoform disorders, a class that was formulated to accommodate the differential diagnosis of disorders characterized primarily by physical symptoms for which no demonstrable organic cause can be found. [...]

*Synonyms and related keywords:*

somatoform disorders, neurasthenia, chronic fatigue syndrome, CFS, hypochondriacs, hypochondriacal behavior, hypochondriacal episodes, hypochondriacal disorder, neurochemical deficits, depressive disorders, anxiety disorders, obsessive-compulsive disorder, OCD, obsessive compulsive disorder, anorexia nervosa, body dysmorphic disorder, BDD, Tourette disorder, Tourette syndrome, Tourette's syndrome, impulsivity disorders, trichotillomania, selective serotonin reuptake inhibitors, SSRIs, malingering.' (Hilty & Marks 2005)

- 'This paper will discuss the concepts of neurasthenia and somatisation and how these other psychiatric terms have infiltrated the psychiatric literature on CFS....."a disease of the nervous system, without organic lesion, which may attack any or all parts of the system, and characterised by enfeeblement of the nervous force, which may have all degrees of severity, from slight loosening of these forces down to profound and general prostration.' (Phillips 2003)
- 'Conversion disorder is included as a somatoform disorder under the general classification of hysterias in the (*DSM-IV*). Although defined as a condition that presents as an alteration or loss of a physical function suggestive of a physical disorder, conversion disorder is more precisely understood as the expression of an underlying psychological conflict or need. The presence of the psychological factor usually is not apparent at onset but becomes evident in the history when a cause-effect relationship between an environmental event or stressor and the onset of the symptom is discovered. [...] The symptoms are... the result of unintentional motives . [not driven by brain-mind-self] This condition is not considered under voluntary control and, after appropriate medical evaluation, cannot be explained by any physical disorder or known pathological mechanism. Clinical descriptions of conversion disorder date to almost 4000 years ago; the Egyptians attributed symptoms to a "wandering uterus." In the 19th century, Paul Briquet described the disorder as a dysfunction of the CNS. Freud first used the term conversion to refer to the substitution of a somatic symptom for a repressed idea. [...] *Pathophysiology*: .... Reactions usually are characterized by symptoms that suggest lesions in the motor or sensory pathways of the voluntary nervous system. [...] Symptoms more often affect the left side of the body. [...] With newer diagnostic testing, instances of false-positive diagnoses of conversion disorder in which a neurological disease is later identified are now rare.' (Powsner & Dufel 2005)

*'Synonyms and related keywords:*

somatization, body dysmorphic disorder, conversion disorder, hypochondriasis, somatization disorder, somatoform disorder NOS, somatoform disorder not otherwise specified, unexplained physical symptoms. [...] 'Other Problems to be Considered: Somatoform disorders must be differentiated from medical illnesses as well as from other psychiatric conditions; consider medical conditions that cause vague and diffuse symptoms. Also, consider somatization as part of a mood or anxiety disorder. [...] Somatoform disorders represent a psychiatric condition because the physical symptoms present in the disorder cannot be fully explained by a medical disorder, substance use, or another mental disorder. ... Often, the medical symptoms patients experience may be from both medical and a psychiatric illnesses. Anxiety disorders and mood disorders commonly produce physical symptoms. [...] Specific somatoform disorders include (1) somatization disorder, (2) conversion disorder, (3) pain disorder, (4) hypochondriasis, and (5) body dysmorphic disorder. Somatization disorder is a relatively rare disorder that is associated with high medical resource utilization. More common somatization syndromes may not reach the diagnostic threshold for somatization disorder but may be clinically and functionally significant. [...] Autonomic arousal may be high in some patients with somatization.' (Yates 2005)

- 'The Kundalini process can also simulate a variety of medical disorders. It can be diagnosed as Jacksonian epilepsy, a lower back problem, incipient multiple sclerosis, a heart attack, or a pelvic inflammatory syndrome.' (Grof & Grof, obtained 1997 – see also Sanella 1979 & 1987)



### ***Explanations: old and new (many modern theories)***

A number of syndromes are ‘not explained physically’, and are associated with women and children more than men. Their old names (eg hypochondriasis, hysteria, neurasthenia), have become more sophisticated names such as somatoform disorder, somatization, conversion reaction, body dysmorphic disorder, (adding, for children:) undifferentiated somatoform disorder, pain disorder, and other conditions that ‘cause vague and diffuse symptoms’, ‘somatoform disorder not otherwise specified NOS’. The lack of visible ‘physical cause’ has given rise to various perspective-based explanations.

- ‘A cognitive model of hypochondriasis suggests that patients misinterpret bodily symptoms by augmenting and amplifying their somatic sensations. Patients also appear to have lower-than-usual thresholds for, and tolerance of, physical discomfort. For example, what most people normally perceive as abdominal pressure, patients with hypochondriasis experience as abdominal pain. When they do sustain an injury (eg, ankle sprain), it is experienced with significant anxiety and is taken as confirmation of their worry about being ill. This may be due to a tendency among patients with hypochondriasis to exaggerate their assessment of vulnerability to disease and their appraisal of the risk of serious illness. [...] The social learning theory frames hypochondriasis as a request for admission to the sick role made by a person facing seemingly insurmountable and insolvable problems. This role may allow them to avoid noxious obligations, postpone unwelcome challenges, and be relieved from duties and obligations.[...] The psychodynamic theory implies that aggressive and hostile wishes toward others are transferred via repression and displacement into physical complaints. The hypochondriacal symptoms serve to "undo" guilt felt about the anger and serve as a punishment for being "bad." [...] Neurochemical deficits with hypochondriasis and some other somatoform disorders (eg, BDD) appear similar to those of depressive and anxiety disorders. For example, the aforementioned obsessive-compulsive spectrum described by Hollander et al in 1992 includes OCD, BDD, anorexia nervosa, Tourette syndrome, and impulse control disorders (eg, trichotillomania, pathological gambling). Although only preliminary data have been reported on these neurochemical deficits, such deficits may explain why symptoms overlap, why the disorders are commonly comorbid, and why treatments may parallel one another (eg, SSRIs).’ (Hilty & Marks 2005)
- ‘Conversion disorder: With primary gain, the symptoms allow the patient to express the conflict that has been suppressed unconsciously. [...] With secondary gain, symptoms allow the patient to avoid unpleasant situations or garner support from friends, family, and the medical system that would otherwise be unobtainable. [...] According to sociocultural theories, the direct expression of emotions is impermissible and somatization takes its place. [...] In behavioral models, conversion symptoms are viewed as a learned maladaptive behavior that is reinforced by the environment. The idea that conversion disorder does not have an organic basis has become entrenched. However, some evidence supports the opposite notion.’ (Landau & Carroll 2005)
- ‘Environment-related syndromes like multiple chemical sensitivity, idiopathic environmental intolerance, sick building syndrome, chronic fatigue syndrome, candida syndrome and burnout syndrome, [...] show clinical similarities to classified somatoform disorders. [...] Non-specific subjective symptoms spanning various organ systems are often attributed to “environmental illness”. [...] These syndromes] are typically described as distinct from each other because of an emphasis on one symptom more than others. [...] The many different terms – atypical poliomyelitis, neurasthenia, myalgic neuromyasthenia, epidemic myalgic encephalomyelitis, postviral fatigue syndrome, chronic brucellosis, Icelandic disease, royal free disease, Lake Tahoe disease, yuppie flu, etc. – are evidence of... the hypotheses regarding its etiology... The syndrome is not an illness in the classical sense with a single cause.’ (Wiesmüller et al. 2003)
- ‘It's also very clear that there doesn't exist any clear border's between various diagnosis, nor to normality.’ (The Neanderthal theory of Autism, Asperger & ADHD, 2005)

- 'Recent studies are showing that meditation can result in stable brain patterns and changes over both short and long-term intervals that have not been seen before in human beings and that suggest the potential for the systematic driving of positive neuroplastic changes via such intentional practices cultivated over time. These investigations may offer opportunities for understanding the basic unifying mechanisms of the brain, mind and body that underlie awareness and our capacity for effective adaptation to stressful and uncertain conditions.' (Mind and Life conference 2005)

### ***Destabilisation & restabilisation***

- 'All of this led me to question and ponder as to why some people failed to respond to treatment or were returning intermittently with recurrent, or seemingly unrelated, problems.' (Jefferis 2001 p.11)
- 'As professionals in the field of chemical dependency, we realize addiction has little to do with willpower or moral character...research which is now clarifying susceptibility factors leading to dependencies. We have known that abnormal neurochemistries occur as a result of genetic factors [and] also realize that environmental stressors ...result in neurochemical depletions. These altered chemical states actually become the antecedents or factors necessary for a person to receive positive reinforcement through the use of chemicals. For every thought, feeling, and behaviour there exists a neurochemical equivalent in the brain. In other words, for people to become dependant on an externally sourced chemical to produce desired there must first exist, or be developed, a deficiency of a chemical component in the brain. (...) The only factor that was present in all reported relapses was that the client was NOT using amino acid supplements as suggested (...) supplementation with neuronutrients for precursor loading (...) encouraging brain function. (...) Stress is often predecessor to chemical abuse (...) As a sense of survival, or threat thereto, is stabilized it allows the patient to relax somewhat and begin to feel safe. When neurotransmitter availability is increased, the person can begin to 'feel' as the limbic system is spared the sedation or toxic effect of drugs including alcohol. (...) When sufficient dopamine and enkephalin are available the patient begins to sense the feelings we call love. [...] the patient is ...able to balance feelings with thinking and produce assertive behaviour. Building towards effective self-actualization cannot use a short-cut approach. If we demand behavioural change...without allowing rebalancing the brain chemistry we simply set them up for failure. In persons with strong family histories of dependencies...significantly altered their brain chemistry via unmanaged stress it appears necessary to immediately impact the (...) The use of appropriate amino acid/vitamin/mineral combinations which have been carefully developed and tested is the most effective and least threatening method to enhance brain function (...) quotation by Herbert Spencer: [...] There is a principle,...which is proof against all arguments (...) that principle is contempt prior to investigation.' (Neher, Terry, 1993)
- 'The second broad cluster, depletion fatigue, assembled afflictions marked by slow, chronic wasting, where the sufferer grew emaciated and debilitated, accumulating a host of secondary symptoms from pallor, indigestion and shortness of breath to hair loss, hot sensations on palms of hands and soles of feet, and palpitations, while also experiencing destabilized psyche marked by disturbed dreams or insomnia, fits of melancholy or anger.' (Furth 1999 p.79)
- 'The whole game [of nosological classification] consists in defining the rules of constancy and variability.' (Despeux & Obringer 1997 p.77) [ 'Tout le jeu consiste a definir des regles de constance et de variabilite.' ]
- 'Stability...means difficulty to initiate movement as well as difficulty to be moved.[...] Stability (when one is protected) increases the feeling of safety. Instability means risk but easy mobility. Both are biologically important. Becoming addicted to one of them makes one unsafe for lack of choice. (Feldenkrais 1981 p.39)
- 'Akathisia manifesting as violence [...] and suicide' (Sachdev 1995 p.128-129) and with 'subjective manifestations [...] and] objective feature.' (op. cit. p.130) 'Neuroleptic-induced dysphoria [...] is marked by] slowing of thinking and movement... paralysis of volition... [without] sleepiness or sedation, severe anxiety' (op. cit. p.47) 'In postencephalic parkinsonism... symptoms [are categorized into] paraesthesiae (burning, coldness, tingling and numbness)... and pain (poorly localized painful

sensations without thermal or anaesthetic characteristics and not associated with increased muscle contraction or affected by movements (pressure). The pathogenesis of these symptoms is not understood. (op. cit. p.51). 'The effect of activating manoeuvres [...] The performance of voluntary movements, especially those involving concentrated effort, affects the manifestations of involuntary movements. Movements like tongue protrusion, finger tapping, or walking (1) may bring out movements not otherwise apparent. [...] It is our observation that the movements of AA [acute akathisia] are usually diminished, and may disappear completely, during such activities. [...] The adjective *activating* has been retained to describe these manoeuvres, in the case of akathisia they tend to produce the opposite effect, ie, diminishing or suppressing the movements... during the motor task.' (op. cit. p.133) [(1) compare to some spiritual practices in the Pacific region and India]

- 'The notion of Brain-derived neurotrophic factor (BDNF) overactivity in mania suggests that factors associated with increased BDNF activity may proffer the etiological fundamentals for bipolar affective disorder.[...] (3) Increase in mossy fibers were noted for bipolar affective disorder brain and BDNF is related to the induction of aberrant mossy fiber sprouting.' (Shih-Jen, 2004 p.19)
- 'The clonal selection paradigm describes an immune system whose homeostatic functions are at variance with integrated holistic homeostasis. Given the shortcomings inherent in this paradigm, the immune system is understood differently when the organism (the person) is described as autopoietic. In this view, homeostasis is the capacity to maintain organisational stability. The immune system then becomes a self-referential network of recognition interactions (the central immune system) and a peripheral immune system that is concerned with non-homeostatic, clonally driven defence. The characteristics of the immune network include connectivity, specificity, self-recognition, autoimmunity and tolerance; immunological identity and memory become the emergent characteristics of the network. The immune target of osteopathy is the central immune system, an organisationally closed network, so that resultant changes in immune status are more properly described as compensation by the immune network to perturbation by osteopathic treatment.' (Degabriele 2002)
- 'HeartTracker (also called an RSA Trainer) is a powerful performance enhancement tool. At reasonable price it helps you achieve optimal performance, relaxation, and autonomic stability (homeostasis)... HeartTracker includes a respiration pacer as a therapeutic aide to assist an individual in developing and maintaining breathing patterns leading to autonomic stability or homeostasis.' (Biocom Heart Tracker 2006)
- 'Unfortunately as you age, your brain cell membranes wear out, not unlike the tires of your car.... Phosphatidylserine (PS): The outside coverings of your brain cells are called brain-cell membranes. .... An important nutrient called phosphatidyl serine has been scientifically shown to preserve the stability and function of these membranes.'
- 'Recent studies are showing that meditation can result in stable brain patterns and changes over both short and long term intervals that... suggest the potential for the systematic driving of positive neuroplastic changes via such intentional practices cultivated over time. These investigations may offer opportunities for understanding the basic unifying mechanisms of the brain, mind and body that underlie awareness and our capacity for effective adaptation to stressful and uncertain conditions.' (Mind and Life conference 2005)
- 'Strong Prana is an asset for attaining success in spontaneous practice. Hence willful practice is very important for beginners. Pranopasana and Pranavidya are Sanskrit terms used for the spontaneous practice of Yoga, in which the vital force of Prana plays the key role. Before beginning such spontaneous practice, one should cultivate the intensifying of the vital force... The next step is the release of the vital force.... The third step is the raising of the vital force... along the path of the central subtle channel (Sushumna). The fourth step is the stabilization or conquering of the vital force in the frontal region. The fifth and final step is that of annihilation or dissolution of the Prana. Strong vital force is a must for an aspirant who intends to take up the spontaneous practice of yoga. Weak vital force cannot take one very far on the path. (Muni 1993 p.170-171)
- 'When a sadhaka sits in the lotus posture and masters the prana through this position, he acquires the capacity to stabilize himself in the thought-free state.' (Muktananda 2000 p.118-9)

- 'When the *nadis* are purified, the gastric fire begins to blaze, and when the *prana* is purified, the mind stops wandering and becomes stable.' (Muktananda 2000 p.119)
- 'I was empowered in various tantric practices and it was good to have my imaginative life enriched with such a wealth of symbolism. I studied the graduated path to enlightenment and I had some realisations. But experiencing the emptiness of phenomena did not stabilise my life and I still succumbed to simple temptations.' (Brazier, 2006)

## Text extracts F5 – Gauging thinkers

(See also <Extract F15\ Virtual reality>, and <PPT2 Models collected\ slides 18, 19>)

The following extracts aim to demonstrate the efforts of ‘gauging’ thinkers at formulating in scientific terms or in words something like nexial-topology, and the difficulty to explain the ‘undifferentiated’ domain.

‘If this were true, we would have to expect conflicts between our theories as soon as their number grows beyond a certain point and as soon as they cover a sufficiently large number of groups of phenomena. In contrast to the article of faith of the theoretical physicist mentioned before, this is the nightmare of the theorist.’ (Wigner 1960)

### Of experience

- ‘The *nervous system* and the *endocrine (or hormonal) system* play particularly important parts in maintaining resistance during stress\*. They help to keep the structure and function of the body steady, despite exposure to stress-producing or stressor\* agents, such as nervous tension, wounds, infections, poison. [This is ] the staying power of the body.’ (Selye 1976 pp.2, 12)

- ‘Paradigms determine large areas of experience at the same time.’ (Kuhn 1996 p.129)  
‘[The] reactions, expectations, and beliefs [of the post-revolution scientist] – indeed, much of his perceived world – change accordingly. [...] – [according to a] vision through another paradigm.’ (Kuhn 1996 p.128) (See also <Extract F15\ Virtual reality>.)

‘But it is hard to make nature fit a paradigm. [...] Chemists could not... simply accept Dalton’s theory on the evidence... they still had to beat nature into line... When it was done, even the percentage composition of well-known compounds was different. The data themselves had changed. That is the last of the senses in which we may want to say that after a revolution scientists work in a different world.’ (Kuhn 1996 pp.135)

- *Time Indexing technique (can be adapted for indexing scientific and human ‘spaces’)*:  
‘Individualizing (indexes) [to highlight context] and temporal devices (dates), etc., should be used conjointly. Thus, obviously, chair<sub>1</sub><sup>1600</sup> is not the ‘same’ as chair<sub>1</sub><sup>1940</sup>, nor is Smith<sub>1</sub><sup>Monday</sup> the ‘same’ as Smith<sub>1</sub><sup>Tuesday</sup>.... Through training in the consciousness of abstracting... we become conscious of ... generalizations.’ (Korzybski 1933 p.li)

‘Action is one of the terms of pre-einsteinian physics which has survived unmodified, the only other one being entropy.’ (Korzybski 1933 p.680)

- ‘The irritability of the tissue, as shown in its capacity for response, electrical or mechanical, was found to depend on its physiological activity...When made permanently irresponsive the tissue was said to have been killed...from a confusion of ‘dead’ things with inanimate matter, it has been tacitly assumed that inorganic substances, like dead animal tissues, must necessarily be irresponsive [...] this ‘unexplained’ conception of irritability became the starting point... of *vitalism* ...and introduced as an explanatory principle an all-controlling unknown and inscrutable “force hypermecanique ... Thus it was easy to “explain” the most complex vital... phenomena [by] the super-physical character of response.’ (Bose 1922 p.182)

[...] In animal tissues response becomes feeble at low temperatures. As an optimum temperature it reaches its greatest amplitude, and again, beyond a maximum temperature it is very much reduced.' (Bose 1922 p.188)

[...] In certain types of tissue the stimulated is relatively positive to the less disturbed, while in others it is the reverse... this is accomplished either (1) by 'injuring' or (2) by introducing a perfect block.' (Bose 1922 p. 183)

- 'Action is one of the terms of pre-einsteinian physics which has survived unmodified, the only other one being entropy.' (Korzybski 1933 p.680)

'At present [1933] it appears that two other very general mathematical disciplines will be used increasingly in the future. One of them is the *theory of groups*; the other is *analysis situs*. In the latter we study only these characteristics of figures that are unaffected (invariant) by continuous deformation produced without tearing. Two structural points are relevant for us in this connection: namely that the analysis situs is fundamentally a *differential* and also an *ordinal* discipline, based on asymmetrical relations. In the next chapter, as an illustration of the actional, behaviouristic, functional operational, differential, contact method a short account will be given of the way Einstein structurally treated "simultaneity".' (Korzybski 1933 p.658)

## Of images

- 'Diagrammatizing and even following with one's hand, the visualized order of occurrences, helps enormously. [...] We shall also be greatly helped in our power of visualization when we become acquainted with the structure of the Minkowski four-dimensional worlds.' (Korzybski 1933 p.664)

- 'If icons are central to our thought, not peripheral frills, then the issue of alternative representation becomes fundamental to the history of changing ideas in science (and even to the quite legitimate notion of scientific progress!) How shall we draw the geometry of contingency?' (Gould 1995 p.67)

'Why do scientists grasp the importance of visual imagery, while most humanists accept the hegemony of the word? Scholarly publication in the humanities generally degrades imagery and in many ways. Many thick tomes have no pictures at all... Images when present, are often only "illustrative", are often collected in separate sections, divorced from textual reference and therefore subsidiary.' (op.cit. p.40)

'Visual imagery is central to our lives. [...] Much can be learned from the study of imagery (including its neglect). [...] Iconography is usually seen as superfluous [and] motives that attend the choice and form of images are less conscious than those of scientists [biases] – and therefore underlying personal and social biases become exposed in the pictures that we use.' (op.cit. p.41)

'I am particularly intrigued by the subject of "canonical icons", i.e., the standard imagery attached to key concepts of our social and intellectual lives. Nothing is more unconscious, and therefore more influential though its subliminal effect, than a standard and widely used picture for a subject that could, in theory, be rendered visually in a hundred different ways, some with strikingly different philosophical implications.' (op.cit. p.41)

'*The Ladder or Linear March of Evolution*: ...The most serious and pervasive of all misconceptions about evolution equates the concept with some notion of progress, usually inherent and predictable, and leading to a human pinnacle. Yet neither evolutionary theory nor life's actual fossil record support such an idea. Darwinian natural selection only produces adaptation to changing local environments, not any global theme of progress. [...] We can interpret local adaptation as "improvement" in a particular circumstance, ... but a historical chain of sequential local adaptations does not accumulate to a story of continuous progress...' (op. cit. pp.42-43)

'The problem of diversity is so topologically distinct from the problem of transformation [anatomical change] that a different iconography must be employed for basic illustration. [...] The cone... resides largely in textbooks and professional publications for scientists [rather than for the general public] – but it constrains thought no less.' (Gould 1995 p.61)

- The 'idealizing primal establishment of the meaning-structure "geometry" '(Husserl 1939 p.180) appears as the corner stone of the 'problem-horizon of reason' (op.cit. p.180), but 'what we learn [in



text books] is how to deal with ready-made concepts... substituted for the actual production of the primal idealities' (op.cit. p.169). This production is the '*animal rationale* in every man' (op.cit. p.180) and requires 'the capacity for reactivating the primal beginnings... [which] has not been handed down with it [the learned geometry].' (Husserl 1939 p.170)

- 'The gestures we use as we speak are integrally connected to both our speech and our thought processes. [In] this new scientific direction... [the] method is the comparison of matched gestures, which overlap in meaning with the accompanying speech, and mismatched gestures, which either complement or conflict with the linguistic meaning... The researchers observed children explaining their answers to piagetian conservation tasks (conservation of mass, number or volume when physical appearance is altered). Some children produce mis-matched gestures,.....say that "a tall thin container has a large volume" because it's taller, but simultaneously make a gesture indicating width. These children, it turns out, are the ones who are most ready to learn about conservation, either by instruction or experimentation. [...] The contrast between matches and mis-matches turns out to be a remarkable tool. [...] Mis-matched gestures... bring in another cognitive model besides that presented in speech. However, Goldin-Meadow argues that mismatches are advantageous [...] Mismatched gestures not only allow speakers to express models that are inaccessible to speech but also give listeners access to those models. [...] Apparently conflicting mismatches often reflect different aspects of a potentially unified larger cognitive framework. [...] Another strand of Goldin-Meadow's work, [the] purely gestural communication... of deaf children with hearing parents [shows that their] gestural system [... is] "language-like", informational, ...conventionalised, segmented, and even "grammaticized". [...] She and her co-workers are currently researching such applied issues as the need to interpret children's gestures alongside speech in legal and psychiatric questioning. [... Her book] may help to reshape the basic premises and methods of psychologists and other social scientists.' (Sweetser 2004 pp.606-607).

## Of localisation & extension

### ***Locally variable rather than localised***

- 'The ether of the general theory of relativity therefore differs from that of classical mechanics or the special theory of relativity respectively, in so far as it is not "absolute", but is determined in its locally variable properties by ponderable matter.' (Einstein in Saunders & Brown 1991 p.18)

### ***No Boundary – no 'system' – non-objects***

- '[...] we may also see how easily men may fall into grave errors...such as believing that extension must be localized... that it occupies more space at one time than at another.' (Spinoza 1901 p.30)  
'The exclusion of all idea of cause – that is, the thing must not need explanation by anything outside of itself.' (op.cit. p.33)
- 'Ever since the discovery of the kinship between the various Indo-European languages, scholars have puzzled over the original homeland of the Indo-European speakers. The similarities in their various languages pointed to a common ancestral language, and divergences were explained as the result of migrations from a shared place of origin.' (Feuerstein, Kak & Frawley 1995 p.52)  
'By comparing phonetic and grammatical changes in diverse Indo-European languages, scholars have invented a series of hypothetical steps, suggesting a certain sequence among the languages involved. Moreover, reconstructing the lost Proto-Indo-European mother language, they also hoped to learn something from the reconstructed vocabulary. What kind of social, cultural, and natural environment did it suggest? The problem with such linguistic reconstructions is that they are purely hypothetical. The meaning of reconstructed words in Proto-Indo-European is completely unprovable.' (op. cit. p.56)  
'The reconstructed Proto-Indo-European vocabulary is... controversial when it comes to descriptions of the natural environment, such as plants and animals. J. P. Mallory critically surveyed the evidence and

concluded the following: "If we try to draw the environmental evidence together... we arrive at a landscape... ' (op. cit.p.56)

'The British archaeologist Stuart Piggott summarized the vagaries of linguistic comparisons very poignantly thus: "The method has its dangers. [...] the great Sanskrit scholar A. B .Keith once remarked that by taking the linguistic evidence too literally one could conclude that the original Indo-European speakers knew butter, but not milk; snow and feet, but not rain and hands!" ' (op. cit. p.57)

- 'If the laws of positioning could not be influenced by physical factors....., and were given once and for all, such an ether would have to be described as absolute (i.e. independent of the influence of any other object).' (Einstein in Saunders 1991 p.14)

- 'Under such *natural structural* conditions it is a fundamental fallacy to ascribe to "lengths" or "shapes" or "times" any "absolute" significance. ... "matter", "space", and "time" ... appear as relations between events and some specified observer, and forms of representations. [...] We would evaluate the[se] *terms* as forms of representation, and non-objects.' (Korzybski 1933 p.664)

- 'The universe would be completely self-contained and not affected by anything outside itself. It would neither be created nor destroyed. It would just BE.' (Hawking 1998 p.141).

- 'When you are "nowhere" physically, you are "everywhere" spiritually.' (Wolters p.142)  
'For even if a man is deeply versed in the understanding and knowledge of all spiritual things ever created, he can never by such understanding come to know an uncreated spiritual thing.' (Wolters p.145)

'Do not think that because I call it ... a "cloud" it is the sort of cloud you see in the sky, [...] I mean "a lack of knowing"... for you cannot see it with your inward eye. For this reason it is called "a cloud", not of the sky, of course, but "of unknowing".' (Wolters p.66)

- 'Gravitational energy is non-local, which is to say that one cannot determine what the measure of this energy is by merely examining the curvature of space-time in limited regions. The energy – and therefore the mass – of a gravitational field refuses to be pinned down in any clear location. [...]These are hints that our treasured intuitive views as to the nature of physical reality are less close to the truth than one would have thought... such conclusions must already be drawn on the basis of classical theory.' (Penrose in Saunders & Brown 1991 pp.24-25)

**'Obscure' wording of the 'space': an 'ideal world', a 'mysterious place', a globe-'space'**

A less differentiated view, induced or guided, of this 'space' is better expressed with simple animated images than with language. Translating it into languages (eg words or numbers) produces long and intricate works difficult to follow in their details, and which are often forced to coin new words. Such works are considered obscure, too abstract, 'difficult', intuitive, speculative, or dogmatic by the dominant L-R perspectives, and are understood as inductive (inductive inference rather than 'induced'). 'Advanced' perspectives re-create them by using abductive methods, flat images to reconstruct animation, and a cryptic or abstruse vocabulary that lengthens words to reinterpret – in highly specialised ways – the non-differentiate as generic or generalised. I refrained for three years from doing this, and instead found the imaging of topology more adequate, but the imposed requirements of *detailed and general* explanation (remote from any actual particular situation) and of scholastic production in words rather than live imaging, eventually forced a progressive

redeployment of the 'advanced' sort, into this complex and now 'difficult' dissertation. The following quotations are attempts at expressing in words this global 'space' ('non-local', in natural science vocabulary) (see also <Extract F18\ Rules of localisation-extension in the literature>):

- 'What does health look like?.' (Williamson & Pearse 1980 p.23)  
 'The bionomist is perpetually faced with the insistence of the living entity to build up, i.e. to "grow" in specific diversification of structure and capability of facultisation....' (op.cit. p. 271)  
 'Eutropy, positive, actional... tendency to Wholeness arises with the behaviour of motility in a field of choice, the tendency to Allness arises with the behaviour of motion in a field of chance. [...] Neither then may eutropy be regarded as "negative" entropy... [but as] the emergence of originality, the origination of new "origens". [...] There is no inherent antipathy between the two conventions, Space-Time and Memory-Will' (op.cit. p.273)  
 'Motility in Will... is not *effective*: nor is it "causal", inducing a chain of sequential events. On the contrary, motility spontaneously inducing fields of unity – so bringing together apposite diversities in Memory – is orientational of the content of Memory.' (op.cit. p.190)  
 'Essentially this synthesis is one of the "self" with the "not-self".' (Williamson & Pearse 1980 p. 205)
- 'Husserl actually draws upon two different versions of the *epoché* in *Ideas* (as elsewhere), which versions he does not separate as clearly as one might have hoped: the "universal *epoché*" on the one hand, and a much weaker "local *epoché*" (as one could label it) on the other. The former version requires the phenomenologist to put *all* his existence assumptions regarding the external world into brackets *at once*, whereas the weaker version merely requires him to bracket *particular* existence assumptions, [...] Only the universal *epoché* seems to conflict with our externalist reading: if no extra-mental existence assumptions whatsoever are admitted, then phenomenologically there cannot be object-dependent indexical contents, as externalism would have it. By contrast, there may be some such contents, even many of them, without indexical content generally having to be dependent on a particular extra-mental object. Which leaves enough room for the method of local *epoché* to apply to any given particular case.' [...]  
 'Now the only function of the universal *epoché* is to establish the *Residuum Thesis*, which holds that the realm of (empirical) consciousness is "absolute" in that it does not depend on the existence of an external, spatio-temporal world (cf. *Ideas*, sec. 51, 55).' (Beyer 2004).
- 'Thus we can see that it is before all things necessary for us to deduce all our ideas from physical things – that is from real entities, proceeding as far as may be according to the series of causes, ...never passing to universals and distractions. [...] It would be impossible for human infirmity to follow up the series of particular mutable things, both on account of their multitude, surpassing all calculation, and on account of the infinitely diverse surrounding one and the same thing, any one of which may be the cause for its existence or non-existence [...] the essences of particular mutable things are not to be gathered from their series or order of existence, which would furnish us with beyond their extrinsic denominations, their relations or, at most, their circumstances, all of which are very different from their innermost essence.' (Spinoza 1901 p.34)
- 'At present [1933] it appears that two other very general mathematical disciplines will be used increasingly in the future. One of them is the *theory of groups*; the other is *analysis situs*. In the latter we study only these characteristics of figures that are unaffected (invariant) by continuous deformation produced without tearing. Two structural points are relevant for us in this connection: namely that the analysis situs is fundamentally a *differential* and also an *ordinal* discipline, based on asymmetrical relations. In the next chapter, as an illustration of the actional, behaviouristic, functional operational, differential, contact method a short account will be given of the way Einstein structurally treated "simultaneity".' (Korzybski 1933 p.658)
- 'As a living experience, natural awareness is [...] – neither a subject nor an object, neither time nor space.' [...]

Mind itself has [...] no beginning, no end. [...] The "field" of awareness is completely open "space", but this space is neither "outside" the body nor "inside" the mind. (Tulku 1976)

- 'The boundary condition of the universe is that it has no boundary.' (Hawking 1998 p.141)  
'The universe would be completely self-contained and not affected by anything outside itself. It would neither be created nor destroyed. It would just BE.' (op.cit. 1998 p.141)  
'But if the universe is really completely self-contained, having no boundary or edge, it would have neither beginning nor end: it would simply be.' (op.cit. 1998 p.146)
- ' "Headlessness", the feeling of no self that mystics of all times have aspired to, is an instantaneous way of "waking up" and becoming more aware...' (Harding 2000 back cover)
- 'According to Dr. Lee Zhan Tin, a professor at Gangzhou City Fine Art College, China, western culture is the yang culture...[and] Eastern culture is the Yin culture [...]. It treats people as a small universe. The body is a reflection of the bigger universe. Therefore, it is emphasising [the] study of the body as a method to study the universe.' (Wen Wei Ou 1999)

The practice of a 'form' acted out in gesture is an ancient method to alter body, mind or one's lifeworld in a nexial or topographic way (eg ritual, mystical Qigong form of Wen Wei Ou 1999, Reiki visualisation symbols of Porter 1997 – see <PPT2 Models collected\ slides 17 & 16> respectively).

### **Space as boundaried: badly behaved Hidden, Below, negative sea, Abyss...**

- '*The Apeiron: Its Repression and Resurgence*: The Greek word *peras* means limit or boundary, and "a-peiron," means without boundaries, boundless or indeterminate. *Apeiron* is variously interpreted as "the unintelligible; the many; the moving; the ugly; the bad...the inchoate flux of opposites or contraries...the principle of disorder or disharmony" (Angeles, 1981, pp.14–15). We can associate *apeiron* with the boundless chaos of primordial nature. [...] the *Anaximander* fragment of the 6<sup>th</sup> century BCE. Here *apeiron* is portrayed as the "boundless giver of boundaries." [...] To the ancient Greeks, the *apeiron* posed a significant challenge. [...] It was therefore imperative for them to tame *apeiron*, given the primary impulse... [...] Achieving this end essentially has meant containing what at first appeared uncontainable: the boundless *apeiron*. [...] Being, says Heidegger, is the prespatial action "that provides the space in which space as we usually know it can unfold" (1962/1972, p.14). [...] Similarly, Merleau-Ponty speaks of "brute" or "wild Being" (1968, p.170) – meaning organically grounded, primally embodied [...] Conventional thinking will need to be turned upside down and inside out. [...] we require, an ..."epistemotherapy" that ...regrounds us in the lived body.' (Rosen 2004 pp.3,6)
- 'The other great difficulty..., a null result to second order in powers of  $v/c$  on the detection of "ether wind". The absence of first-order effects –... that electrostatic phenomena...– was well known; ...no experiment sensitive only to effects of first order could detect the ether wind.' (Saunders & Brown 1991 p.41)
- 'We cannot say that the conventional theory is equivalent in all respects to the canonical second quantized theory with respect to the particle complex structure; this is true only for a limited class of global operators (which preserve particle number). In particular, the equivalence does not hold for local multiplicative operators, for these connect positive-and negative- frequency states. (They are "odd" operators...) [...] For these the RHS of (14), if considered a perturbation, would induce transitions from particle to anti-particle states, which would be a complete disaster.' (Saunders & Brown 1991 p.100)
- 'The Dirac hole theory was developed in response to a growing crisis over the Dirac theory of the electron. It predicts the existence of antiparticles in a relativistic quantum theory; the antiparticle came into existence as a 'hole' in a sea of negative-energy particles.[...] the phenomenology, of pair creation

and annihilation processes, the basic mechanisms of relativistic dynamics. [...] If this concept was initially tied to the negative-energy sea, that is not the case any longer. The negative-energy sea remains a widespread heuristic device to introduce antimatter. But nowadays no one would claim that the negative-energy sea actually exists; it is no longer taken as a literal description of the vacuum.' (Saunders 1991 p.65)

- 'We may conclude that the negative-energy sea is what the particle vacuum looks like using the wrong notion of complex numbers (the natural complex structure). If the particle vacuum is to appear really empty, then we must use the particle complex structure at the Hilbert space level.' (Saunders 1991 p.106)

- 'Gödel extended Einstein's General Theory of Relativity with cosmological models —now known as "Gödel Universes"—with extraordinary properties, including the possibility of closed, timelike curves.' (Sklar 2002)

'Gödel's discovery of models of general relativity with closed causal curves,' (Sklar 2006)

### ***The philosophically good enfolded-unfolded***

- 'An inquiry into our language: [...] suddenly to invent a whole new language... is clearly not practicable. What can be done is... to introduce a *new mode* of language. [...] The *rheomode* ("rheo" is from a Greek verb, meaning "to flow") [...] a mode in which movement is to be taken as primary in our thinking... by allowing the verb rather than the noun to play a primary role.[...] Hidden variables in quantum theory.' 'Quantum theory as an indication of a new order in physics: implicate and explicate physical law.' 'The enfolding-unfolding universe and consciousness.' (Bohm 1980 pp.30-31)

### ***An ancient perspectivalist review of iconic analogies we reformulate***

In this perspectivalist review of different general frameworks of explanation (delineated below by [1], [2], [3], [4]) each set of iconic analogies is found reformulated in different historical periods, uses different topographic and nexial imaging, and are still found, respectively, in our modern models (whose deployment topology can model), human metaphors, natural sciences, and intuition-instinct.

'*Tracing Dao to its source* is the opening treatise of the *Huainanzi*, [and is ] among the earliest and most seminal of the documents that illustrate how Han thinkers [syncretic way of thinking] came to see their world...' (Lau 1998 p.3) '[It is an] argument against ... expansionism, and the zero-sum consolidation... that was driving...' (op.cit. p.5, from the postface) "It investigates the cycles of calamity and good fortune, of benefit and injury." (op.cit. p.9) 'The underlying structure of most of the syncretic texts and their commentarial appendices tends to be an illustration of what we will call an emanating and centripetal "radial" order [... with a] mosaic structure.' (op.cit. pp.10, 12)

[1] 'It shelters the heavens and supports the earth,  
 Extends beyond the four points of the compass  
 And opens up the eight points of the compass [...]  
 Flowing from its source it becomes a gushing spring,  
 What was empty slowly becomes full;  
 First turbid and then surging forward,  
 What was murky slowly becomes clear.  
 Hence, stand it up vertically, and it stuffs up the heavens and the earth;  
 Lay it horizontally on its side, and it fills the four seas.  
 Dealing it out it becomes endless, yet is without morning or evening.  
 Unroll it, and it blankets the six directions;  
 Roll it up, and it is less than a handful.  
 Compact, it can stretch out;  
 Dark, it can be bright. [...]

It is the thinnest of gruels, the finest and most subtle texture.' (Lau 1998 p.61)

[2] 'By virtue of it, mountains are high;

By virtue of it, abysses are deep;

By virtue of it, animals run;

By virtue of it, birds fly;

By virtue of it, the phoenix soars.' (op.cit. p.63)

'Thus, with the heavens as his canopy, there is nothing that is unsheltered;

With the earth as his boxframe, there is nothing that has no conveyance; (op.cit. p.71)

He knows the lay and the boundaries of the various divisions and quadrants of the cosmos. [...]

Hence, there is nothing you can do about the world.

[3] You can only follow what is natural in pushing the myriad things ahead. [...]

The likeness of the sound and shape is attained without fuss.' (op.cit. p.73)

'Observe what is being accumulated,

And you will know which direction it is heading for: fortune or calamity.' (op.cit. p.97)

[4] [Water] 'is without private likes' (op.cit. p.103)

'Following the water gauge and adhering to the plumb line,

He does in every way what is fitting to the circumstances.' (op.cit. p.111)

'Vaguely they feel as if something is missing

Or as if pinning after something lost.' (op.cit. p.119)

'If we seek for the cause behind this, we cannot get a hold of it,

Yet this is doing injury daily to one's vitality.' (Lau 1998 p.121)



## Text extracts F6 – Brain Central Control

'[...] Malnutrition could contribute to neurotransmitter disturbances...neurotransmitter disturbances could be related to ...fluid or electrolyte abnormalities.' (Anderson & Kenedy 1992 p.120)

The following extracts review some aspects of the role of the brain in health, which are rarely put together into a coherent 'big picture'. This hides both 'whence' our focus on the brain comes, and 'where' it leads.

### ***Double-binds: activated head and its lateralisation***

- 'When the parts of the body and its humors are not in harmony, then the mind is unbalanced and melancholy ensues but on the other hand, a quiet and happy mind makes the whole body healthy' (Aristotles)
- 'When the members work joyfully, The head rises grandly; And the duties in all the offices are fully discharged! [...] When the head is intelligent, The members are good; And all affairs will be happily performed! [...] When the head is vexatious, The members are idle; And all affairs will go to ruin! (Waltham 1971, *Shu Ching, Yi and Chi* p.35)
- 'Laterality –it must be right – ... Children who... are poorly lateralized, and who are emotionally unstable or immature are all likely candidates for dyslexia. There is no reason why the remedy for such deficiencies could not be carried out within the school itself. [...] No doubt someone will ask, "What about the cost?" Surely to humanize a little child and make him into a man is something beyond price!' (Tomatis 1991 pp.168,169)
- 'By taking readings on hundreds of people, Dr. Davidson has established a bell curve distribution, with most people in the middle, having a mix of good and bad moods. Those relatively few people who are farthest to the right are most likely to have a clinical depression or anxiety disorder over the course of their lives. For those lucky few farthest to the left, troubling moods are rare and recovery from them is rapid. [...] was there something about the training of lamas - the Tibetan Buddhist equivalent of a priest or spiritual teacher - that might nudge a set point into the range for perpetual happiness? Perhaps luckily, there is a catch: almost no one can read these moments. [...]reading microexpressions, and seeks to help people better manage their emotions and relationships [...]Finally, the scientific momentum of these initial forays has intrigued other investigators. Under the auspices of the Mind and Life Institute...' (Goleman 2003)  
 'In short, the results suggest that the emotion set point can shift, given the proper training. In mindfulness, people learn to monitor their moods and thoughts and drop those that might spin them toward distress. Dr. Davidson hypothesizes that it may strengthen an array of neurons in the left prefrontal cortex that inhibits the messages from the amygdala that drive disturbing emotions. Another benefit for the workers, Dr. Davidson reported, was that mindfulness seemed to improve the robustness of their immune systems, as gauged by the amount of flu antibodies in their blood after receiving a flu shot. [...]The mindfulness training focuses on learning to monitor the continuing sensations and thoughts more closely, [...]What difference such intense mind training may make for human abilities...' (Goleman 2003 – see <Extracts F10\ Left-Right>)

### ***The brain for health***

The role of the brain and that of the mind in stabilising health is covered by a great amount of literature, Western and Eastern, conventional and alternative. Some examples are:

Laughlin et al. 1990, Wickelgren 1997; Khalsa & Stauth 1999, Sapolsky 1994, Dupont 2000, Parasuraman 1988, Philpott et al. 2000, Peck 1996; Fehmi & Fritz 1980, Feldenkreis 1981, M asters 1994, Khalsa & Stauth 1999, Rossi 1996, Axelsson 2001, Leonard & Murphy 2003, Weil 1985, Harris 2002.

### **'Brain, pain, drain'**

- "The brain, the pain, and the energy drain!" ... is how Charles Lapp, M.D. of the AACFS... describes CFS and FMS. [...] sleep disorder is one of the symptoms... [...] IF you ask people why they visit the doctor, Jason states that the number one reason will be due to fatigue. Yet if you turn the situation around and ask health care providers (doctors)... "Fatigue will be at the bottom of their list!". So biased perceptions about fatigue play a role in defining "who" receives the diagnosis of CFS.' (Thorson 2003 p.9) [...] '*Biochemistry of CFS*: The AVP is an enzymatic process that exists within the body's white blood cells, called lymphocytes. [...] These [pro-inflammatory] cytokines are produced by "activated" glial cells in the spinal cord. The glial cells become activated by any type of infection (not just viruses) physical trauma or tissue damage. [...] The purpose of the AVP is to activate an enzyme (Rnase L) to degrade RNA in order to halt protein synthesis, which in turn prevents the viruses from replicating. [...] Chronic activation of the AVP interferes with protein synthesis [...] In CFS patients, Suhadolnik found that two types of Rnase L enzymes are present in a majority of patients. [...] The smaller enzyme works three times faster than the larger enzyme to breakdown RNA. (Thorson 2003 p.11)
- 'Headache is probably man's Number One malady. [...] Headaches have been with us for a long time. [...] Between headaches the migrainous individual is usually perfectionistic, productive and unusually healthy. These individuals may actually live longer than others because of having a "safety valve" which creates a headache when too much stress occurs. [...] A lucky one-third of mankind never has a headache of the kind that occasionally lays the rest of the world low. Excluding neuralgias and (back-of-the-head) muscle tension, one can state flatly that headaches are due to varying heart and blood volume output in relation to the local or peripheral resistance to blood flow. [...] The headache does not occur during the drop in blood pressure accompanying the initial histamine shock.' (Pfeiffer 1975 p.432-3)
- 'Pain, explains Dr. Young, is "an unpleasant sensory and emotional experience, associated with actual or potential tissue damage. It is always subjective; there's no such thing as a pain meter. [*but topography*] Many things influence pain; it can be viewed as a fifth vital sign, and gives us valuable information into inner workings of the body. [...] 'Doctors often tell women that they're getting old or it's all in their head... it's all in her mind [...] often unwarranted psychogenic attributions for pain in women by doctors : all in your mind or head, hysterical, hypochondriac, getting old, ...menstrual, ...menopausal [...] that statistics show they more frequently will be labelled as hysterical, [men: "drug seekers"] [...] Such reactions are evidence of a lack of individual attention, and reinforce the desirability of an integrative approach that emphasizes customized or individualized care. [...] The bottom line is that women are not small men when it comes to pain, [...] 'But what causes pain? What are the underlying mechanisms? It may be caused by increased central stimulation [...] But pain can also be caused by decreased central inhibition," says Dr. Young; the central inhibitory pathways are modulated by chemicals like serotonin and norepinephrine [known as noradrenaline outside the US]. Looking at the picture in total, both the mind and the brain may play a powerful role in modulating ascending and descending pain signals, and can truly shape the pain experience. [...] regulate the brain's natural ability to suppress pain.... endorphins or enkephalins that dampen the pain signals received by the brain.' (Morris 2005)
- Dermatomes of nerve numbness and pain (Marieb & Mallatt 2003, p.436)
- 'Vital signs are physical signs that indicate an individual is alive, such as: breathing rate, heart beat, temperature and blood pressure. These signs may be observed, measured, and monitored to assess an individual's level of physical functioning. Normal vital signs change with age, sex, weight, exercise tolerance, and condition.' (Owens 2005)

*Vital Signs as remnants of the 4 Elements: WATER – blood pressure; AIR – breathing rate, WIND – heart beat; FIRE – temperature;... and EARTH – pain, the ‘5<sup>th</sup> vital sign’.*

### ***HTA Axis, vertical axis, brain as body integrator***

- ‘The 2 principal effectors of the stress response, the hypothalamic-pituitary-adrenocortical (HPA) axis and the sympathetic nervous system (SNS), are also activated. Although normally adaptive, the stress response may become maladaptive in patients with chronic pain and fatigue syndromes, such as FM.’ (Winfield 2006)
- ‘Depression is characterised by an over activity of the hypothalamic-pituitary-adrenal (HPA) axis that resembles the neuro-endocrine response to stress. These HPA axis abnormalities participate in the development of depressive symptoms. Moreover, antidepressants directly regulate HPA axis function. These novel findings are reshaping our understanding of the causes and treatment of this disabling disorder. [...] Why should the stress-induced activation of the HPA axis, a biological system that is life saving and enables us to fight or escape our enemy, lead to such a bad thing as depression? The answer, from an evolutionary point of view... While the exact mechanism of this effect is still unknown - and we are divided on whether cortisol is a hero or is a villain...’ (Pariante 2006)
- ‘According to this view [*self-organization in nonlinear systems*], the organism is conceived to consist of a number of communication subsystems integrated by the brain into a larger system of information transfer and exchange with the environment in terms of coded signals of many different categories (from ions to words).’ (Weiner 1992 pp.283-4)

### ***Brain cuts the pain: stress analgesia (opioid and non-opioid)***

- ‘Two forms of stress analgesia have now been described.’ [opioid and non-opioid] (Weiner 1992 p.5)
- ‘[...] Empirical advances: Until fifteen years ago stress research consisted of correlations between the stressor and the physiological and/or anatomical changes in the body. The discovery of the brain-gut peptides and other advances in neurobiology have [...] given] a new impetus to stress research. (1)Two forms of stress analgesia have now been described [...] (2) The function of brain peptides is to produce *patterned* physiological changes, which are exactly what an integrated view of the responses to stressful experiences demands..’ (Weiner 1992 p.5)

### ***Perturbable dynamics, information (perception): brain integrated ‘response to stress’ (external-internal)***

- ‘The concept of perturbation leading to a change in function is central to and the basis of stress theory (Weiner 1989, 1991b). It... allows us to understand how the human organism with its unique genetic and experiential history responds to perturbing experiences that allow it to remain intact, or to make the voyage from health to illness and/or disease,... Rhythmic functions manifest stability but, being dynamic are perturbable.’ (Weiner 1992 pp.284)
- ‘Significant advances have recently been made in our understanding of how the organism responds in a patterned and integrated, behavioral and physiological manner to new experiences, perturbations, challenges, threats, injury or complex changes in the environment. One seeks to understand by what means the organism recognizes them, what is the meaningful signal that is perceived, and how that perception is translated and orchestrated into anticipatory and appropriate behavioral and physiological responses designed to ensure survival. But the environment is not only stressful, it is also a source information and a repository of resources.’ (Weiner 1992 p.2)
- ‘the person for diverse reasons has failed to cope with them.’ (Weiner 1992 p.15)
- ‘Nonlinear mathematical models are approximate descriptions of the dynamic functions of biological systems. It is acknowledged that a more realistic account of physiological rhythms is needed. Feedback, that in part accounts for them, is provided by information exchange within the organism and between organisms by signals of a large variety of kinds. In this way, the organism is kept

informed about its own internal state and the condition of the external environment.' (Weiner 1992 p.283)

### ***Brain-immune bi-directional vertical axis: activation***

- 'Cytokines for psychologists: Implications of bidirectional immune-to-brain communication for understanding behaviour, mood and cognition.' (Maier & Watkins 1998)
- 'The brain and immune system form a bidirectional communication network in which the immune system operates as a diffuse sense organ, informing the brain about events in the body. This allows the activation of immune cells to produce physiological, behavioral, affective, and cognitive changes that are collectively called sickness, which function to promote recuperation. Fight-flight evolved later and coopted this immune-brain circuitry both because many of the needs of fight-flight were met by this circuitry and this cooptation allowed the immune system to respond to potential injury in anticipatory fashion. Many sequelae of exposure to stressors can be understood from this view and can take on the role of adaptive responses rather than pathological manifestations. Finally, it is argued that activation of immune-brain pathways is important for understanding diverse phenomena related to stress such as depression and suppression of specific immunity.' (Maier & Watkins 1998)

### ***Micro-motions: being unconscious or sensitive***

- 'Sensitivity is the set of functions that permit to react to the stimulation of a sensory receptor (sensation). ... The classification of the five senses, established in antiquity... is incomplete: it does not include the spatial sensations that give information on the position and motion of the body in space. Sensitivity plays a fundamental role in adaptation. The question of the validity of the sensory data is essential and Descartes distrusted them.' (Sensibilité, 2001, summarised translation)
- 'When the text is read with mind and consciousness well focused, when the concentration is sufficiently complete, certain phenomena will occur to assist the communication process just described [message from text to mind to brain to body]. [...] The reason why these phenomena – mostly micromovements of the muscles – are unconscious is simply that they are so small. [...] the mind is to be as passive as possible, doing *nothing* voluntarily, and refraining from initiating bodily activities. Only when the mind is thus passive does the central nervous system have the best opportunity to make its own comparatively pure responses to the text [its message to the body]. ' (Masters 1994 p.3-4) [...] 'Masters has also developed a series of exercises to reverse aging... 'Whatever the brain can organize, Masters says now, the body will execute. If you learn to frame the statement, if you use the right images, you can work on heart, blood flow, lymph. The movement will happen.' (Masters 1994 p. xvi)
- 'As Dr. Ekman describes in "Emotions Revealed," to be published by Times Books in April, these microexpressions - ultrarapid facial actions, some lasting as little as one-twentieth of a second – lay bare our most naked feelings. We are not aware we are making them; they cross our faces spontaneously and involuntarily, and so reveal for those who can read them our emotion of the moment, utterly uncensored.' (Goleman 2003)
- 'Strong Prana is an asset for attaining success in spontaneous practice. Hence willful practice is very important for beginners. Pranopasana and Pranavidya are Sanskrit terms used for the spontaneous practice of Yoga, in which the vital force of Prana plays the key role. Before beginning such spontaneous practice, one should cultivate the intensifying of the vital force... The next step is the release of the vital force.... The third step is the raising of the vital force... along the path of the central subtle channel (Sushumna). The fourth step is the stabilization or conquering of the vital force in the frontal region. The fifth and final step is that of annihilation or dissolution of the Prana. Strong vital force is a must for an aspirant who intends to take up the spontaneous practice of yoga. Weak vital force cannot take one very far on the path. In order to strengthen the vital force one should... and practice willfully the Yogic exercises. When, through such willful practice the vital force is intensified, one should lift mental control over the body through the relaxation of the bodily organs and limbs. If this is done properly, the intensified vital force is released. This is Pranasfurana, in which various physical movements occur spontaneously. (Muni 1993 p.170-171)

### **Failure of brain-central-control**

- 'The disease of adaptation deals with maladies [...] which we consider to result largely from failures in the stress-fighting mechanism.' (Selye 1976 p. xviii)
- 'the person for diverse reasons has failed to cope with them.' (Weiner 1992 p.15)
- 'I have included all the many names that I have found for the syndrome first named neurasthenia in April 1869, up to the most recent proposal of Chronic Neuroendocrine-immune Dysfunction Syndrome. The dates refer to the year of the earliest (and often only one) published paper I could find that defines the disease.' Among these over one hundred names are: Fibrositis, Heat, Cold and Effort Sensitiveness, 20th century syndrome, many names for neurasthenias, myalgias, fatigues, dysautonomias, syndromes related to encephalomyelitis, allergy, battle, related to hypochondriasis, neuroses and mental illness, Idiopathic Hypoguesia., and Chronic Habitual Hyperventilation Syndrome.' (Donnay 2002) – See etymology of 'hypochondria' and 'hysteria'.
- 'Patient: Annette – She added, "I know – not wanting to mature as a female body is a child's way of looking at it. (Czyzewski &, Suhr 1988 p.122) [...] Annette repeated the issue of not feeling human during the course of therapy... I told her that many other patient's expressed the same fear. Annette ... [said] "It is sort of a given that if you don't see yourself or your body as everybody else considers them to be, then you are not really human".' (op. cit. p. 128) 'Patient: Ita – How come that a girl growing up under such favourable circumstances fails to develop a sense of meaningful self-value. '(op. cit. p. 130) ' Patient: Fawn – Fawn's attitude about her eating habits was partly mystical.' (op. cit. p. 139)
- ' Anorexics misuse the eating function in their effort to solve problems in various areas of living. (op. dit. p. 115) [...]they suffer from a perceptual flaw in that they are frequently unable to differentiate between hunger and other sensations and feeling states: the brain is continuously making mistakes in its efforts to discriminate between bodily and psychological needs [...] they may claim that they were introduced to this uncontrolled overstuffing with food by others and may hold these people responsible for the habit..' (op. cit. p. 115)
- 'If you fall asleep after meals, talk to your doctor' [TV message]
- 'The exact cause of narcolepsy is unknown. Studies using gene markers have indicated that the disorder may be genetic. A small group of neurones in the brain has been implicated in producing transitions from sleep to wakefulness and vice-versa. People with narcolepsy may have fewer of these neurons or they may have been damaged. The condition may be aggravated by conditions that cause insomnia, such as disruption of work schedules. Narcolepsy is characterized by episodes of frequent, uncontrollable daytime sleeping, usually preceded by drowsiness. The episodes usually occur after meals, but sudden onset of sleep may occur while working or driving a vehicle, having a conversation, or being in any sedentary or nonstimulating situation. There is a brief period of sleep, and the person awakens feeling refreshed. However, the person may again become uncontrollably sleepy a short time later.' (Campellone 2004)
- 'E. Bleuler notes that the child is not a little schizophrenic but a normally functioning though primitive being. "The schizophrenic will regress to, but not integrate at , a lower level; he will remain disorganized" (Arieti, 1959, p. 475). Regression is essentially disintegration of personality; that is *dedifferentiation* and *decentralization*. [...] Decentralization is, in the extreme, functional dysencephalization in the schizophrenic.' (Von Bertalanffy 1968 p.214)

### **Self-control of health, brain-central-control: Alert voluntary attention**

- ▲ "Rather than signaling [sic] pleasure as previously thought, the neurotransmitter dopamine may be released by brain neurons [sic] to highlight significant stimuli... Satisfaction triggers the release from cells deep inside the brain of chemical dopamine – a neurotransmitter supposed to act on the brain's reward system to produce feelings of pleasure.. but many researchers no longer believe it acts directly, producing feelings of pleasure or euphoria. Instead, new data indicate that dopamine release within the brain highlights, or draws attention to certain significant or surprising events... but also... simply startling.... These researchers say the dopamine signal helps the animal to learn to recognize them and in some cases to repeat them.' (Wickelgren 1997)

- The secret of transformation from illness to health to higher levels of performance and well-being lay in recognizing and facilitating a person's own creative resources during these natural windows of inner focus and rejuvenation that arise periodically for about 20 minutes every hour and a half or so throughout the day (Rossi 1982 p.130). [...] Igor Todorov (1990) has integrated research on the molecular genetic cellular-level that outlines the more general process of complex adaptation to physical trauma, shock and stress.' (Rossi 1996 p.144)
- 'The senior author has outlined research supporting *The Neuropeptide Hypothesis of Consciousness and Catharsis* that accounts for the arousal and relaxation phases of cathartic psychotherapy by the time-linked release of ACTH and... mental experience can modulate body processes and vice versa, in cybernetic patterns of information transduction. Mind over body and body over mind.' (Rossi 1996 p.308-9)
- 'Release of a rigidly apprehended focus of attention is associated with higher amplitude of EEG activity, as exemplified by alpha waves, and by greater phase agreement or synchrony between the activity occurring at all lobes.' (Fehmi & Fritz 1980 p.25) 'An attentional perspective suggests that the "automatic" triggering of the "fight or flight" response actually presumes the attentional mode of narrow focus-separateness. [...] Stressful life events take their toll in accumulated tension... precisely because they elicit narrow focused [sic], obsessive or denying modes of attending.' (Fehmi & Fritz 1980 p.27) [...] Open Focus may be seen as an altered state of awareness in which denial processes are dropped, thus promoting alert tranquility, physiological normalization and optimization of performance.' (Fehmi & Fritz 1980 p.28)

### ***Brain & mind – Immunity as psycho-neuro-endocrino-immunology***

- "Primarily considered a modulator of blood pressure and water balance, vasopressin is also involved in anxiety-like behaviours, especially in animals exposed to repetitive stressors... and there is also evidence that people with depression demonstrate increased levels of vasopressin.' (Spollen et al. 2002)
- There are two physiological conditions that may be related to unusual cognitive abilities. One is associated with the hypersensitivity that may bring on asthma and allergies, the other with vasopressin, the hormone whose most familiar effect is water-retention in body tissue.' (ASPR 2005)
- 'It is difficult to doubt that immunity and a person's psyche are interrelated, but what is difficult to explain is the causal relationship. What is really causing what? Some argue that stress causes depression, which causes the immune system to function improperly because resources are tied up in activating the fight or flight mechanism. Others argue that depression causes stress, which then causes fight or flight. And yet another group argues that a person's psychological state causes the individual to indirectly affect their health by bad nutritional, physical and sleep patterns. Future studies need to address these issues.' (Beaton 2003)
- 'I recited the words.....and I can only surmise that it acted through.....a form of emotional resonance that happens when receptors are vibrating together in seemingly separate systems. This was before the term *subtle energy* had been introduced to describe a still mysterious fifth source.....and scientifically explain anomalies. (Pert 1997 p.252)
- 'Progesterone [can, says Pert's doctor,] protect against the symptoms of menopause: hot flashes, fibrocystic "lumpy" breasts, weight gain, and fluid retention... [It] is the "mother hormone", creating feelings of calm and nurturance (especially in pregnant and lactating women, who produce particularly high quantities of it).' (op. cit. p.255)
- 'I have postulated a biochemical link between the mind and body, a new concept of the human organism as a communication network that redefines health and disease, empowering individuals with new responsibility, more control in their lives.' ((op. cit. p.15)
- 'The concept of a network, stressing the interconnectedness... has a variety of implications.... In the popular lexicon, these kinds of connections between body and brain have long been referred to as "the power of the mind over the body." But in light of my research, this does not describe accurately

what is happening. Mind doesn't dominate body, it *becomes* body – body and mind are one. I see... the flow of information... as evidence that the body is the...actual outward manifestation, in physical space, of the mind – Bodymind... It become[s] clear how emotions can be seen as a key to the understanding of disease. [...] The immune system, like the central nervous system has memory and the capacity to learn. Thus it could be said that intelligence is located not only in the brain but in cells that are distributed throughout the body.[...] The brain is extremely well integrated with the rest of your body... The information molecules travel from one system to another... of the network. [We] must see them [emotions] as cellular signals that are involved in the process of translating information into physical reality, literally transforming mind into matter. Emotions are the nexus between matter and mind, going back and forth between the two, and influencing both.' ((op. cit. p.187-189)

- '[...] In animal tissues response becomes feeble at low temperatures. As an optimum temperature it reaches its greatest amplitude, and again, beyond a maximum temperature it is very much reduced.' (Bose 1922 p.188) '[...] In certain types of tissue the stimulated is relatively positive to the less disturbed, while in others it is the reverse;...this is accomplished either (1) by 'injuring' or (2) by introducing a perfect block.' (Bose 1922 pp. 183)
- 'There is increasing scientific interest in the area of brain-immune system interactions and the physiological changes that are induced by activation of the immune system.... Stress and other behavioral and psychologic factors may be linked to disease susceptibility and progression through either direct CNS-immune system links or CNS-endocrine-immune system pathways. Cytokines and their receptors that are expressed in both the immune and central nervous systems provide a critical link between the two systems. Activation of these cytokine receptors regulates a variety of physiological events, ranging from activation of the hypothalamic-pituitary-adrenal axis to sickness behavior.' (PsychoNeuroImmunology 2006)
- 'The study of the effects of the mind on the functioning of the immune system, especially in relation to the influence of the mind on susceptibility to disease and the progression of a disease.' [...] 'The field of psychoneuroimmunology (PNI)... studying the interactions among the central nervous system (CNS), the endocrine system, and the immune system. Mechanisms underlying this linkage are, now becoming understood. [...] Psychoneuroimmunology increasingly is dissolving dualisms of mind-body, body-environment, and individual-population.' [...] '...that somatic awareness is akin to psychological insight ... The degree to which the patient is skilled at sensing the body's diseases and its health are also conditions of meaning, as integrated through interpretations of life experienced by mind-brain-immune system. [...] Patients may begin to realize the extent to which the body that he or she presents to medicine for diagnosis and treatment ...' (PsychoNeuroImmunology 2003)
- Searches on the whole website performed more recently returned: 'Search Keyword "mind" – Total 0 results found.', and 'Search Keyword "somatic awareness" – Total 0 results found.' (PsychoNeuroImmunology – 2006 searches)
- 'To understand these factors, collaborations between investigators from different disciplines must have an understanding for each other's fields, methods, and technologies.' [...] 'This innovative journal publishes peer-reviewed basic, experimental, and clinical studies dealing with behavioral, neural, endocrine, and immune system interactions in humans and animals. [...] Research areas include: Stress and immunity, including the role of stress-related hormones and neurotransmitters on the immune system and brain; Actions of cytokines and growth factors on neuronal and glial cells to regulate behavior, cognition, and neuroendocrine function; [...] Inflammation, neuroscience, and behavior; [...] Sleep, exercise, immunity, and health; [...] Regulation of nerve injury and repair by the immune system; Psychosocial, behavioral, and neuroendocrine influences on immunity and on the development and progression of immunologically mediated disease processes; [...] Cancer, brain, and immunity;' (PsychoNeuroImmunology 2005)

## Text extracts F7 – Landscapes and forms of stability

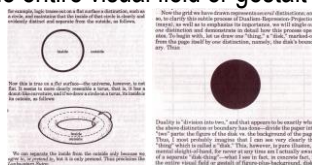
The following extracts display various ways of formulating perspectives based on the topographic notion of landscape, with various words. Landscapes in general represent ‘quasi-stability’ rather than permanent stability (stable ‘for a time’), and often involve notions of timed self-[re]organisation that yield self-fulfilling prophecies about reality. The graphic form of some of these models is used in the presentation <PPT2 Models collected>.

### **Boundary and localisation**

- ‘Life becomes suffering, full of battles. But all of the battles in our experience... are created by the boundaries we misguidedly throw around our experience.’ (Wilber 1985 preface)

‘Logic traces out on a flat surface a distinction, such as a circle, and maintains that the inside of that circle is clearly and evidently distinct and separate from the outside... Now this is true on a flat surface – the universe, however, is not flat. It seems to more clearly resemble a torus, that is, it has a donut-like curvature, and if we draw a circle on a torus, its inside *is* its outside. We can separate the inside from the outside but only because we *agree to or pretend to*, but it is only pretend. Thus proclaims the Lankavatara Sutra’ (Wilber 1977 p.56)

‘Duality is “division into two”, and that what appears to be exactly what the above distinction or boundary [dark disc] has done – divide the paper into “two” parts: the figure of the disk vs the background of the page. [...] never and I actually aware of a separate “disk-thing” – what I see in fact, in concrete fact, is the entire visual field or gestalt of figure-plus-background.’ (Wilber 1977 p.106)



(Wilber 1977 p.56, and 106)

Compare this to the following description of a vertical axis, the gastrointestinal tract:

- ‘Intestinal Disorders: The adult gastrointestinal tract is essentially a tube which runs from the mouth to the anus. The center, or lumen, of this tube is rather like the hole in a doughnut. It is actually continuous with the external environment, which means that the contents are technically outside the body. From the stomach on, the surface of this tract is made up of a single layer of cells. Absorption of nutrients occurs through this layer of cells. The surface of the lumen is highly convoluted, with many ridges and valleys. This allows for a much greater surface area from which nutrients can be absorbed. Also embedded in this surface are cells which secrete various enzymes, acid, hormones, water, mucous and ions into the lumen... [...] The intestines are essentially comprised of two segments - the small intestine and the large intestine.’ (Canadian Association of Gastroenterology 2006)

- ‘For a relativist, on the other hand, the idea of a fundamental description of gravity in terms of physical excitations over a background metric space sounds physically very wrong. The key lesson learned from general relativity is that there is no background metric *over* which physics happens (unless, of course, in approximations)... general relativity is much more than the field theory of a particular force. [...] Rather, it is the discovery that certain classical notions about space and time are inadequate at the fundamental level; [...] One of these inadequate notions is precisely the notion of a background metric space, (flat or curved), over which physics happens.[...] Therefore, we need a



*relational notion of a quantum spacetime...* 'formulated without a background spacetime.' (Rovelli, 1998a)

'We do not know whether this theory is physically correct or not. Direct or indirect experimental corroboration of the theory is lacking. This is the case, unfortunately, for all present approaches to quantum gravity. The other large research program for a quantum theory of gravity, besides loop quantum gravity, is string theory, which is a tentative theory as well.' (Rovelli, 1998b)



- *'Metamodel* : This is a core dynamic four quadrant spiraling integral model.' (Von Bertalanffy, et al., wholeness seminar 1996, see <PPT2 Models collected >)  
 'The general is simple, the particular is complex. [...] Finding and identifying what we call our primary and secondary principles of systemics provides us with a list that may include all possible kinds of relationships. Furthermore, many of these primary and secondary relationships co-exist simultaneously, while others are emergent, and include time as a process.... Well, think of this as a metaphor... [...] Systems, (from the Four Directions of Philosophy, Theory, Methodology and Application), as a family of meaningful relationships among the members acting as a whole and possessing... [...] That was made from our toolbox, which as a LIST looks like this: ... We have broken the sub-parts into word (intensional) and example (extensional) definition. [...] A System is a family of relationships, among the members acting as a whole... A System integrates relationships into a whole (family) [...] Reference is the creation of any relationship by an observer. Reference establishes a standard from which an observer can infer associations of variables such as correlation or causality. Reference creates a relationship for an observer. [...] Internal excludes relationships which belong outside the reference boundaries established by a particular observer. [...] External are those relationships which belong outside the reference boundaries established by a particular observer... There are many dangers external to the space shuttle's protective skin. [...] A Whole is a system which is observed without its internal relationships, thereby embodying a function on its own... A Whole is perceived by observers for its function on its own, instead for its specific relationships, subsystems, and parts. It quasi hides or has hidden its internal relationships from observation. [...] Boundary collects all of the unobserved relationships in a system being observed, making wholes or entities 'I can see the whole city!', cried the boy at the top of the Empire State Building. [...] Simplicity is a state of wholeness. What does Simplicity do? Simplicity describes wholeness. Seen from afar, it is easy to think of the oak tree is a model of simplicity." [...] Unification is the tendency toward wholeness. What does Unification do? Unification gathers entities into wholeness. The unification of our disparate theories might result in a clearer path for all.' (Shapiro et al., wholeness seminar 1996)
- *'Boundaries*: Any system as an entity which can be investigated in its own right must have boundaries, either spatial or dynamic. Strictly speaking, spatial boundaries exist only in naïve observation, and all boundaries are ultimately dynamic. One cannot exactly draw the boundaries of an atom bomb (with valences sticking out, as it were, to attract other atoms), [...] or of an organism (continually exchanging matter with environment). In psychology, the boundary of the ego is both fundamental and precarious. As already noted, it is slowly established in evolution and development and is never completely fixed. It originates in proprioceptive experience and in the body image, but self-identity is not completely established before "I", "Thou" and "it" are named. Psychopathology shows the paradox that the ego boundary is at once too fluid and too rigid. Syncretic perception, animistic feeling, delusions and hallucinations, and so on, make for insecurity of the ego boundary; but within his self-created universe the schizophrenic lives "in a shell", much in the way animals live in the "soap bubbles" of their organization-bound worlds (Schiller, 1957). In contrast to the animals limited "ambient", man is "open to the world" or has a "universe"; that is, his world widely transcends biological bondage and even the limitations of his own senses. To him, "encapsulation" (Royce, 1964) – from the specialist to the neurotic, and in the extreme, to the schizophrenic – sometimes is a pathogenic limitation of potentialities.' (Von Bertalanffy 1968 p.215)
- 'The terms *feedback, servo-mechanisms, circular systems and circular processes*, may be viewed as different but equivalent expressions of much the same basic conception.' (Frank et al., 1948, condensed p.17)

'In the last resort, structure (i.e., order of parts) and function (order of processes) may be the very same thing: in the physical world matter dissolves into a play of energies, and in the biological world structures are the expression of a flow of processes.' (op. cit. p.27)

'as "systems", i.e., complexes of elements standing in interaction' (op. cit. p.33)

- 'The effect arises from the interplay between localized and extended states that form when electrons, confined to two dimensions, are subject to a perpendicular magnetic field. The effect involves exact quantization of all the electronic transport properties owing to particle localization....strong-field localization associated with a single-particle drift motion of electrons along contours of constant disorder potential.' (Llani et al. 2001 pp 328,329.)

- 'The differentiation of frontal lobe epilepsy (FLE) and temporal lobe epilepsy (TLE) is a clinical problem of major theoretical and practical importance. [...] The results of this study suggest that relatively few seizures can be localized reliably on clinical grounds and... an important minority do not share the same associations... with specific cortical areas... Analysis of the seizure evolution as well as initial symptoms may be of value in localizing some cases, but even here wide variation occurs. These findings lead us to question the value of classifying partial epilepsy using electroclinical criteria, particularly in trying to infer anatomical localization.' (Manford, Fish & Shorvon 1996)

- 'This book is about the way other persons become visible to us, or cease to be visible to us. It is about the way we make ourselves (and the originally interior facts of sentience) available to one another through verbal and material artifacts, as it is also about the way the derealization of artifacts may assist in taking away another person's visibility. The title of the book, *The Body in Pain*, designates as the books' subject the most contracted of spaces, the small circle of living matter; and the subtitle designates as its subject the most expansive territory, *The Making and Unmaking of the World*. But the two go together...' (Scarry 1985 p.22-23)

'When one hears about another person's physical pain, the events happening within the interior of that person's body may seem to have the remote character of some deep subterranean fact, belonging to an invisible geography that, however portentous, has no reality because it has not yet manifested itself on the visible surface of the earth. Or alternatively, it may seem as distant as the interstellar events referred to by scientists who speak to us mysteriously of not yet detectable intergalactic screams or of "very distant Seyfert galaxies, a class of objects within which violent events of unknown nature occur from time to time." Vaguely alarming yet unreal, laden with consequence yet evaporating before the mind because not available to sensory confirmation, unseeable classes of objects such as subterranean plates, Seyfert galaxies, and the pains occurring in other people's bodies flicker before the mind, then disappear.' (op. cit. p.2-3)

'But the nature of creation, however self-effacing, must also be conceptually available and susceptible to description so that the periodic dislocations within its overall structure of action can be recognized and repaired. The collective effort to understand making, already very old, will always be ongoing. [...] It passes on the password of Isaiah's ancient artisans – "Take Courage!" (41:6).' (op.cit. p.326)

### ***Topography in anatomy***

- 'The four corners delineate the normal size and location of the heart'... 'enlarged or displaced heart can indicate heart disease or other disease conditions'. (Marieb & Mallatt 2003 p.522)

'the fibrous pericardium... adheres to the diaphragm inferiorly, and superiorly is fused to the roots of the great vessels that leave and enter the heart. [...] Deep to fibrous pericardium is the double-layered serous pericardium a closed sack ... between the parietal and visceral layers of serous pericardium is a slit-like space, called the pericardial cavity, which contains a lubricating film of serous fluid' (op.cit. p.524)

'*Pericarditis*: 'inflammation of the pericardium...can lead to a roughening of the serous lining of the pericardial cavity. As a consequence, the beating heart produces a creaking sound called pericardial friction rub... Over time, it can lead to adhesions of the heart to the outer layer of the pericardial wall or the pericardium can scar and thicken, then contract and inhibit the heart's movements. Pericarditis is characterised by pain behind the sternum.' (op. cit. p.524)

'*Cardiac Tamponade*: In severe, acute cases of pericarditis, large amounts of fluid resulting from the inflammatory response exude into the pericardial cavity.... excess fluid compresses - The excess fluid

compresses the heart, limiting the expansion of the heart between beats and diminishing its ability to pump blood.' (op. cit. p.524)

### ***Landscapes of stability and stable paths***

- 'According to this doctrine [of freedom, prepared by the doctrine of contingency]... practical good, or the ideas, which merits realisation, and yet is capable of not being realised, is indeed realised only when it happens spontaneously. The laws of nature have no absolute existence; they simply express a given phase, a stage, a moral and aesthetic degree of things, so to speak.. [...] They are the image, artificially obtained and determined, of a model that, in essence, is living and movable. The apparent constancy of these laws finds its reason in the stability inherent in the ideal self. [...] This is what in man is called habit. [...] Habit, however, is not the substitution of a substantial fatality for spontaneity: it is a state of spontaneity itself.' (Boutroux 1874 p.195)

'In proportion as... the subordination of the lower being to the higher... becomes more spontaneous and complete: ... we find a diminution, throughout the world,... of the undisputed sway of physical fatality. The complete triumph of the good... would replace them [laws of nature] by the free flight of human wills...' (op. cit. p.196)

'Man is endowed with intelligent spontaneity, the highest form of which is free will or the power to choose between good and evil. [...] Free spontaneity, however, in the conditions of the actual world, can do no more than increasingly approach this ideal. It never reaches the end of its task.' (op. cit. p.184)

'intercurrent spontaneity' (op. cit. pp.185).

- 'One of the most characteristic properties of the developmental process is that it is stable. An embryo does not need an absolutely perfect environment and it can survive many small disturbances and even some large ones. Two embryos do not have to be clones to turn into very similar adults. The stability of development is, however, not just the simple sort of stability that we observe in such familiar examples as a ball at the bottom of a cup. An embryo that is perturbed will not return to the state that it was previously in. If it can recover at all, it will continue to develop, eventually reaching more or less the state it would have attained had it been left alone. What is stable is not the state of the embryo at any one time, but its pathway of development.' (Saunders, P. 1993)

- 'For a relativist, on the other hand, the idea of a fundamental description of gravity in terms of physical excitations over a background metric space sounds physically very wrong. The key lesson learned from general relativity is that there is no background metric over which physics happens (unless, of course, in approximations)... general relativity is much more than the field theory of a particular force. [...] Rather, it is the discovery that certain classical notions about space and time are inadequate at the fundamental level; [...] One of these inadequate notions is precisely the notion of a background metric space, (flat or curved), over which physics happens.[...] Therefore, we need a *relational notion of a quantum spacetime*.[...] "formulated without a background spacetime.' (Rovelli, 1998a see <PPT2 Models collected>)

- 'Therefore, we need a *relational notion of a quantum spacetime*.' (Rovelli, 1998b section 2.2) 'formulated without a background spacetime.' (ibid.)

'Loop quantum gravity is a mathematically well-defined, non-perturbative and background independent quantization of general relativity, with its conventional matter couplings. The discreteness emerges naturally from the quantum theory and provides a mathematically well-defined realization of Wheeler's intuition of a spacetime "foam".' (op.cit. section 1)

- '...a very small value of the cosmological constant is the "dark energy" that is driving the expansion of the universe. [...] New solution... We therefore know that the de Sitter minimum has to be unstable, and that it will ultimately decay to the stable flat 10D minimum via quantum tunnelling (see figure). Fortunately its lifetime is far greater than the age of the universe.' (Quevedo 2003, see <PPT2 Models collected>)

'The measured value is near 0.2. This is close to an  $\Omega$  of 1, which is strange because  $\Omega$  of 1 is an unstable critical point for the geometry of the Universe. [...] Values slightly below or above 1 in the early Universe rapidly grow to much less than 1 or much larger than 1 (like a ball at the top of a hill). So the fact that the measured value of 0.2 is so close to 1 that we expect to find in the future that our

measured value is too low and that the Universe has a value of exactly equal to 1 for stability. And therefore, the flatness problem is that some mechanism is needed to get a value for  $\Omega$  to be very, very close to 1 (within one part in a billion billion).’ (Quevedo 2003)

- ‘Resilience is the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks. Precariousness: the current trajectory of the system, and how close it currently is to a limit or “threshold” which, if breached, makes recovery difficult or impossible.’ (Walker et al. 2004, see <PPT2 Models collected>)

- ‘Figure 1: a system moving through the adaptive cycle.... The red and yellow balls indicate alternative stable states of the same system. ... growth equation, ...  $\Omega$  and  $\alpha$  signify ending and beginning. [...] Figure 3: A simple depiction of ecosystem replacement on an oceanic island such as Krakatoa. The volcano changes the topography of the island and covers it in ash and lava, creating a different abiotic environment. Recolonization occurs at random from bird-dispersed seeds that differ substantially from those of the vegetation that was there prior to the volcano. Spatiotemporal continuity of the ecosystem is completely lost in this example.’ (Cumming & Collier 2005)

Compare to archaic literature and myths told by Plato.

### ***Shapes and expression***

- ‘Irigaray said that woman is not situated, “does not situate herself in her place”, that she serves as a thing and is thus nude. I have intuitively felt the need to “clothe” myself, to find the Place within me, to move from object to sentient subject.... awakened me to the language that I and others spoke everyday – and how the world was thus shaped: how my very own sacred Land, my bodily presence in the world was alienated from my consciousness by everyday expression and imagery.’ (Livingstone 2005 p. 4-5)

- ‘The new science of comparative philology has revealed that, if on the one hand speech gives expression to ideas on the other hand it receives impression *from* them, and that the impressions thus stamped are surprisingly persistent. The consequence is that in philology we possess the same kind of unconscious record of growth and decay of ideas [...] bearing upon the “origin of human faculty.” (Romanes 1888 pp.238-9)

‘... observe that the theory of evolution was clearly deduced from, and applied to, the study of languages, by some of the more scientific philologists, before it had been clearly enunciated by naturalists. “[...] we must bear in mind... the spread of one dialect at the expense of others, a fact which obliterates intermediate forms, and brings extreme ones into geographical juxtaposition.\* ” ---- [Author’s note:] \* Remembering that the above was published two years before the Origin of Species by means of Natural selection, this clear enunciation of the struggle for existence in the field of philology appears to me deserving of notice. [...] Now, at the present day, owing partly to the establishment of the doctrine of evolution in the science of biology... students of language are unanimous in their adoption of the developmental theory. [...] A philologist may be firmly convinced that all languages have developed by way of natural growth from these simple elements or “roots.” (op.cit. p.240-2)

- ‘Laws do not exist before things; they presuppose their existence. They do not govern phenomena, but only express them. [...] What Boutroux called the “the doctrine of contingent variations”. ...’ (Vidal 1994 p.223)

- ‘*Reconstructing... [system] histories from... clusters:...* after the true nature of [systems] as... “island universes” was established, their origin... remain[s]... unsolved. One of the ways to investigate... formation is to study the ubiquitous... globular...clusters..., one of the most promising “tracer” populations... that can serve as reliable gauge of their evolution. [...] Recent advances in our understanding... point to a complex picture of ... genesis driven by cannibalism... and tumultuous events. [...] ... *Subpopulations:* [...] The detection of young [new] massive... clusters... [...] the presence of such... in disturbed [systems] suggests that the disturbances themselves may act as a catalyst for the birth of globular clusters and raises the question of whether this might be the primary mechanism of... formation. [...]... that many – perhaps most—large [systems] possess two or more

subpopulations of globular clusters [...] that have quite different ... metallicities. By convention, the metallicity... is measured relative to the Sun's..., are inferred from their... colours..., [and is] confirm[ed] [statistically to be ] well described by... two gaussian distributions with distinct metal-poor and metal-rich peaks. Subsequent studies revealed that these... sub-populations also have different... kinematics. [...] *Competing formation models*: [...] that the metal-poor and metal-rich correspond to different generations... originated... from clouds of metal-poor... that collapsed under gravity... to form... Over time... explosive deaths... "ashes" from their interiors [...] If a second generation... forms..., then two separate species of clusters... one... more metal-rich.... But how to trigger multiple episodes of... formation? [...] *Model strengths and weaknesses*: Although each of the competing models offers a plausible explanation for the existence of multiple globular cluster populations, each [model] suffers from... shortcomings. [...] creation of multiple generations... are predicated on processes whose physics is poorly understood... such as... heating and cooling, cluster... Producing two or more generations... requires fine-tuning... If [formation] is a prolonged process rather than occurring in bursts at two or more well-separated epochs [...] then the resulting cluster populations would probably have a broad distribution of metallicities [...] is lacking the distinct peak seen in the majority of large [systems] today [...] Strongly constrained by the very old ages... suggests that either... completed [in distant past] or that such events are not the primary mechanisms by which most clusters form. [...] accretion model of pre-formed globular clusters [by cannibalisation of the small]... relegating... the creation of new globular clusters...taking place today... to a second-order effect... rather than the primary formation mechanism for most [...] Additionally requires a distribution of proto...masses that was very heavily weighed in favour of low-mass... with large... assembled from... cannibalized smaller... Such a steep mass function is inconsistent with observations of the luminosity function of [systems] today, but is suggestively similar to the primordial spectrum , predicted by the cold-dark matter models of... formation.' (West et al. 2004)

### ***Medieval inner landscapes, and textiles, texture, topography***

- 'The language of inner alchemy strike and outsider as that of a fanciful and poetically imagined cosmic body populated with spirits and animals, buildings and roads, streams, peaks and valleys, in a topographical landscape of the interior traveller's voyage into a fantastical realm. However, Yuan Huang shows how the alchemical body was mapped precisely onto the medical one of circulation channels and *zang* and *fu* organ systems... and how the poetical inner journeys were correlated with body states imagined in concrete somatic terms. [...] The most profound metaphor was gestation and ... embryo.' (Furth 1999 pp.198-199)
- 'The term *ching* is of textile origin, and signifies the warp threads of a web and their adjustment. An easy application of it is to denote what is regular and insures regularity.... The term *shu* simply means writings or books: the pencil speaking. It may be used of a single character or of books containing thousands of characters.' (Waltham 1971 *Shu Shing* p.249)
- 'The term *jie* recalls the idea that the *qi* is comparable to a twisted thread, forming in the body a real net of vertical and horizontal threads. This is why it is said that the *qi*... can turn into knots, generally as the effect of a battle between two elements. *Yunjie* characterises the process of formation of pus.' (Despeux & Obringer 1997 p.100, see also Despeux & Obringer 1997 p.37). [ 'Le terme *jie* renvoie à l'idée selon laquelle le *qi* est comparable à un fil torsadé, formant dans le corps un véritable filet de fils verticaux et horizontaux. C'est pourquoi l'on dit que le *qi*... peut se nouer (*jie*), en général sous l'effet d'une lutte entre deux éléments. *Yunjie* caractérise le processus de formation du pus.' ]
- 'By the reading of these [ritual texts] properly, those devotees [or *yogis*] who are advanced in understanding can make the best use of the transference at the moment of death. They [...] will depart by the Great Straight-Upward [Path]. Others [...] will go by the upward [course]. [...] There being several turning-points, [...] But those of very weak *karmic* connexions, whose mass of obscurity is great [...] have to wander downwards and downwards to the *Sidpa Bardo*.' (Evans-Wentz 2000)
- 'Thinkers classed as philosophical Taoists [...] share one basic insight — that, while all other things move spontaneously on the course proper to them, man has stunted and maimed his spontaneous aptitude by the habit of distinguishing alternatives, the right and the wrong, benefit and harm, self and others, and reasoning in order to judge between them. To recover and educate his knac

he must learn to reflect his situation with the unclouded clarity of a mirror, and respond to it with the immediacy of an echo to a sound, or shadow to a shape.' (Graham 2001)

### **Shapes & patterns**

- 'Cheng's stories [physician practicing in the 1610's and 1620's]... exposed a gulf between one expert's readings... and sufferers experiencing these in terms of a [learned] phenomenology... or sensations. [...] Illness, as experienced and described by the sufferer in the language of symptoms, had to be renamed – converted through pattern analysis into "disease", a medical diagnosis that unlocked the key to a therapeutic strategy.' Note <sup>14</sup> by Furth: 'Here I am applying the medical anthropologist's distinction between "illness" as a subjective-experiential perspective and "disease" as an expert's explanatory model of a disorder. See Good 1994: 53.' (Furth 1999 pp.238-239)

- 'Gelhorn's unaccountable neglected theory of ergotropic-trophotropic processing (Laughlin et al 1990 p. 296)

'Very simply, one may meditate upon portal symbols in a disciplined way (i.e., generate a willful semiotropism) and explore the experiences that arise from concentration. Those experiences may then be treated as data concerning the "meaning" or intentionality of the portal symbols (i.e., semiosis). However the experiences arising for the anthropologist are not necessarily the same as for the native practitioner. [...] 'A very common theme in ritual and visionary reports is the passage from one realm of reality to another through a symbolic limen, or portal (see Turner 1974,1979,1982). This process is experienced typically as the passage through a door, mirror, hole or tunnel, to emerge, like Alice stepping through the looking glass in an alternative reality. We have termed this experience *portaling*, and the symbols and instruments used ritually to evoke the experience as *portal symbols* (see MacDonald et al. 1989). Many objects may be used as portal symbols in ritual, including mirrors, gems, and crystals, skyring bowls and pools, cave mouths and doorways. We consider portal symbols and, and practices accompanying them to be thoroughly archetypal, as such we may expect them (1) to be universal, or nearly so, in the mythopea of cultures valuing experience of multiple realities; (2) to be utilized cross-culturally in a similar manner within the context of ritual practice; and (3) to evoke under proper conditions similar experiences cross-culturally. In particular, we hypothesize that portal symbols will penetrate to the neurocognitive structures controlling the entrainment phases of consciousness and will produce often profound reentrainment of those systems. In other words, portal symbols produce warps in consciousness....Metaphorically speaking, portal symbols are precisely like doors between rooms...If we conceive of the rooms as relatively durable phases of consciousness then the doors are warps... additional symbolism pertains to the relationships between rooms and to ways of moving between rooms. We are suggesting that transformational symbols have predictable forms cross-culturally because of their efficacy in penetrating to the mechanisms that produce reentrainment of neurocognitive systems mediating the play of experience unfolding in the sensorium. Furthermore, by directing a practitioner's attention to the warp between phases of consciousness, portal symbols result in opening up the warp to awareness and thereby to cognitive restructuring as a phase.' (Laughlin et al 1990 pp.326-7)

- 'A notation for cross-level analysis is presented. [...] It is a truism that all of our environmental scanning (ES) is undertaken through perceptual filters. These filters are mostly not conscious, but act as pre-conscious conditioners of what we see.[...] With a better understanding of what we do and don't allow ourselves to see, we can take steps to consciously widen and deepen our scanning frame. Such a scheme also provides a basis for analysing both the approach to and results of scanning activities (our own and that of others). [...] the spirit of ES, which attempts, in a sense, to "cover the world".' (Voros 2001 p.3 see <PPT2 Models collected >) 'One interpretation of the integral model is that human evolution may be conceived as an expression of the unfolding of the basic structures of consciousness (... or deep structures...) ... ..express potentials not givens. Therefore in this view the overall shape of the future unfolds as a particular expression of latent deep potentials which allow for many possible futures to emerge "on top". This means that the integral model may also be viewed as a model of macrohistory.' (op.cit. p.7) 'views of the world and....ways of thinking and perceiving. Beck and Cowan commonly express this as describing the containers that *shape* world views, not the contents that *fill* them. [...] SD models the evolution of human cognitive capacities in terms of a spiralling double-helix.' (op.cit. p.8) 'The SD structures [...] tend to become more expansive and able

to perceive a wider and broader world space the later they are in the sequence.' [...] We are now faced with the choice of whether to treat the further levels as four structures (psychic, subtle, causal, non-dual), two structures (soul, spirit) or just one (such as transpersonal).' (op. cit. p.13) 'I will use a single explicit scanning level, 'transpersonal' which has nodal designator 'TRANSPERSONAL' or simply .....it stems from the presence of transpersonal waves.' (op. cit. p.14) 'I will describe a short-handed notation for showing subject-object, locations in a cross-level analysis (....) present-day futures work (...) "lines" would correspond to the horizontal "breadth" typologies of STEEP factors' (op.cit. p.16) 'many different lines of development' (op. cit. p.18) 'Each of the STEEP factors ..can be conceived of as a *type* of development line .. perhaps as a *cluster* of closely related lines, it is but a small step...' (op. cit. p.19) 'It's all about filters... that are not conscious; they act as pre-conscious conditioners of not only what we *do* see, but also what we *can* see. [...] The framework presents an analytical tool (cross-level analysis) for examining world-views in terms of both the subject doing the viewing and the level of reality (object) being viewed as well as a notational system to describe it.' (op. cit. p.20)

- 'Logic and interaction: Toward a geometry of cognition' (CNRS 2006)

### **Hexagone and ring: most stable physical shapes**

- 'Aromatic Compounds are ring compounds with a benzenoid structure (i.e. have a ring structure of six carbon atoms, with alternating single and double bonds), or those resembling benzene in chemical behaviour. The simplest aromatic compound is benzene, C<sub>6</sub>H<sub>6</sub>. Although aromatic compounds are unsaturated, they do not readily undergo addition reactions, instead undergoing electrophilic substitution to preserve the stability of the aromatic ring. Aromatic compounds readily undergo substitution reactions that preserve the aromatic structure of the ring. Aromatic stability is explained by resonance.' (O'Leary, Donald, 2000, see also Budwig's work)

- 'Scale and proportion: do the mechanisms of planar polarity also help determine the shape and sizes of animals? [...] Could the cell also measure the amount of the difference across itself?' (Lawrence 2004)

- 'The Rugosa are an extinct group of corals (...) solitary rugosans are often referred to as "horn corals" because of their characteristic shape [...] although technically all rugose corals were solitary animals, some grew in groups [...] formed mound shaped fossils... In rugose mounds, each tube or corallite skeleton has its own skeletal wall, [...] 'Rugose is the technical term meaning that a surface is wrinkled. Corrugate (or corrugated) is a synonym. Rugulose means finely or slightly wrinkled; as used in this website, it refers to the sort of slight puckering [textured] that paper exhibits when it has been wetted and then left to dry. [...] 'Skeletal Structures: The typical corallite will display a cup shaped, hollow depression (calice) in the top of the corallite skeleton which is a mould of the base of the soft-bodied polyp. An internal set of thin, vertical, radial partitions (*septa*) which reflect the pattern in which the folds of the internal wall of the soft bodied animal were arranged. Rugose corals begin their growth from the larval stage with six *major septa* [...] after which new major septa appear in only four locations as the coral expands upwards, thus creating a distinctive bilateral symmetry. A second set of usually very short, *minor septa* which alternate with the major septa, usually being restricted to the peripheral zone of the corallite. The extent of septal development is highly variable, changing from minor extensions arranged around the periphery of the skeleton to the stage where all the major septa extend to the centre of the corallite where they may also twist into an axial vortex. In some cases the axis of the corallite may be occupied by one of more thickened septa forming an axial rod (*columella*). Numerous horizontal, domed or depressed plates (*tabulae*) which extend across the central part of the corallite (*tabularium*). These represent the upward, staged migration of the base of the polyp calice as the corallite grew to the adult stage. A set of small bubble-like plates (*dissepiments*) arranged around the periphery (outer margin) of the skeleton (*dissepimentarium*). Dissepiment may be located between the radial septa or they can expand in various ways to take over the whole of the marginal zone of the skeleton.' (Oliver & Coates 2005)

### **Challenge to theories of evolutionary jump & progression line**

- 'We need not follow either the historians of the ancient world who seem to feel that there is no real need to explain the apparently abrupt rise of civilisation in Egypt, or take recourse to the equally

unsatisfactory speculative approach which wishes to build castles in the sands of Egypt.' (Rudgley 1999 p. 14)

'Searching through the historical record for the origins of the evolved civilisations, I was disturbed by the series of "suddenlies". Science, that is, formal science, had begun "suddenly" with the Greeks; in a less philosophically coherent way, bits of near-science, mathematics, and astronomy, had appeared "suddenly" among the Mesopotamians, the Egyptians, The early Chinese... Civilisation itself ... writing... agriculture... the calendar... art... modern *Homo sapiens* man – as one theory has it – walked into Europe to displace Neanderthal man.' (Marshack, quoted in Rudgley 1999 p.101)

- 'The fibers making up any sensory system in the spinal cord come from the same cells as do the fibers in peripheral nerves yet severed nerve fibers in the adult spinal cord do not regenerate but damaged peripheral nerves – those in the extremities – do heal themselves. Why should spinal cord regeneration be an issue, why should an inhibiting protein have evolved to prevent it and what causes this protein to be expressed?... (1) The model of the neurons as wires is too simplistic. (2) In humans the 'map' of individual connections is (topologically, at least) locally variable, though the overall global topology and "functionality" of each normal spinal cord is constant. Both of these issues have to be addressed if functional restoration is to be achieved.' (Aaron-ben 2003 p.597)
- 'The study of art has been plagued by our desire to see this essentially human skill in a progressive evolutionary context: simple artistic expressions should lead to later, more sophisticated creations. [...] Yet... the evidence increasingly refuses to fit. Instead of a gradual evolution of skills, the first modern humans in Europe were in fact astonishingly precocious artists. [...] for example,... from the first charcoal animal drawings to the more recent multicolour animals drawn with a clear sense of perspective at famous sites such as Lascaux and Altamira... And yet the beautiful multicolour horses, lions and mammoths at the Grotte Chauvet,... dating from 32,400 years before present, are now thought to be the oldest examples of cave art in the world.... The archaeological evidence is now forcing us to come up with new timescales for cultural change and innovation. This is a challenge that makes the smallest finds of archaeology as important as the largest.' (Sinclair 2003)
- '*The Ladder or Linear March of Evolution*: ...The most serious and pervasive of all misconceptions about evolution equates the concept with some notion of progress, usually inherent and predictable, and leading to a human pinnacle. Yet neither evolutionary theory nor life's actual fossil record support such an idea. Darwinian natural selection only produces adaptation to changing local environments, not any global theme of progress. (Gould, 1995 p.42-43)

### ***Challenge to theories of growth of bodies: baby as foreign 'graft'***

- 'From the viewpoint of genetic biology, a child is a new life with the same number of genes coming from both parents; only half of the child's characteristics belong to the mother. Therefore half of their child is a stranger for both his mother and his father.

'Fetus Grows up in His Mother's Womb as Graft:

Although pregnancy is a natural event, there is an uplifted immunological theory behind it. An ovum fertilized by a sperm incorporates the father's genes; so the half of the embryo is not related to the mother. Therefore antigenic substances of the father, not the mother, are expressed on the surface and organic structure of the child's cells. The maternal immunity system should encourage immune responses to those expressions. However, the phenomenon is supposed to be immunological paradox because the mother can bring up her baby properly for as long as 40 weeks. [...] Once the immunological phenomenon under pregnancy is clarified, it can offer an important clue for the development of necessary immunological suppression for renal and other types of transplantation. It is even said that mother-child relationship in pregnancy is established while fighting with immunological rejection<sup>2</sup> which is providence of nature. [...] Graft and graft rejection: Transplantation is a process to take living tissue or an organ from a living body and implant it in another part of the body or in another body. The transplanted tissue or organ is called graft... Rejection occurs when the graft cannot be successfully transplanted due to an immune response.' (Child Research Net 2005)



## Text extracts F8 – ‘Establish’: forms of stability

The following extracts display some of the various ways of ‘establishing’. This is a connective approach to the same problems that are approached in terms of motions in the various forms of ‘stability’, including cycling, multi-stability and meta-stability (stable path) (see <Extracts F7\ Landscapes>). ‘Establish’ and ‘stabilise’ are symmetric approaches. As a rule of thumb, we tend to try to solve the problems caused by establishment through destabilisation, and those caused by stability through unbinding, flowing. The ‘advanced’ forms of both combine to rely on quantic jumps, nexial (operational boundary breaking) or topographic (connective boundary making), which are the source of periodic instability. The latter is ‘built-in’ reality (or space), through the conventionalisations of our normal and extra-ordinary topologies. The common resulting problems (wasting, consumption) are resolved *only* either locally or globally (not both) through return... and restarting the whole deployment, thus yielding endless repetition but there is another hidden cost: a progressive, hidden, global loss of integrity and local loss of sensitivity. These deployments (both generative and degenerative) can be modelled with nexial-topology, but the literature only ever deals with one of the two sides of the symmetry, as the following extracts show. This undifferentiated problem is visible throughout our written history: it has plagued us since much before our ‘recorded history’ began.

### **Forms of stability**

- ‘From the Latin *resilire*: to jump back, recoil; Physics: the ability to return to an original shape or position after compression, bending or stretching; Psychology: rising readily again (to be cheerful) after being depressed or emotionally challenged; Ecology: capacity of systems to absorb (and even benefit from) disturbance and reorganise while undergoing change so as to still retain essentially the same functions, structure, identity and feedbacks. As social ecologists..., with our concern for considering the personal, socio-cultural, ecological and ‘spiritual’ (and unknown / mysterious), and the complex interrelationships between them, we tend to expect that phenomena recognised in one area have parallel phenomena (in possibly all) other areas; so it is with ‘resilience’, which incidentally may be linked to “good” and “evil”! [...] In 1973, the Canadian biologist Buzz Holling...in an effort to distinguish the nature of stability in ecosystems (characterised by persistence, change and unpredictability) from the common understanding of stasis (which tends to emphasise efficiency, constancy and predictability) proposed using the term resilience... to describe the adaptive ability of ecosystems to remain stable while also evolving. Thus, whereas the common understanding of stability assumes a

single equilibrium state that a system must return to after disturbance, in ecosystems there can be diverse equilibria, which emerge through interactive and co-evolutionary changes across all levels (scales: from sub-atomic to cosmic).' (Hill 2005)

- 'We see then that there are numerous undesirable consequences of accepting the position that inquiry can be and is value-free. It ritualizes the process of inquiry; it arbitrarily limits the range of admissible knowledge – that is, knowledge open to the inquiry process, it can give the appearance of coherence ...' (Lincoln \* Guba 1985, p.173).

In naturalistic inquiry', in the 'constantly emergent design, the iterations are repeated ... until ... the theory is stabilized and the design fulfilled to the extent possible in view of ... constraints'. (op. cit., p. 188)

'The theory that emerges will be consistent (necessarily) with the methodological paradigm that produced it.' (op.cit. p. 238)

- 'Multistability, the capacity to achieve multiple internal states in response to a single set of external inputs, is the defining characteristic of a switch. Biological switches are essential for the determination of cell fate in multicellular organisms, the regulation of cell-cycle oscillations during mitosis and maintenance of epigenetic traits in microbes.' (Ozbudak et al. p 737)

- 'Multiple stable states or alternative equilibria in ecological systems have been recognized since the 1960's in the ecological literature. Very often, the shift between alternative states occurs suddenly and the resource flows from these systems are modified. Resilience is the capacity of a system to undergo disturbance and maintain its functions and controls.' (Martin 2004)

- 'Human diseases characterised by insoluble extracellular deposits of proteins have been recognised for almost two centuries. Such amyloidoses were once thought to represent arcane secondary phenomena of questionable pathogenic significance. But it has now become clear that many different proteins can misfold, [... in diseases such as] Alzheimer's and Parkinson's diseases. [...] There are many examples of... proteins... that can be converted in part to highly stable extracellular fibrils. [...] There is a prolonged preclinical phase during which proteins misfold, build up ... A portion of this long prodrome derives from the energetic barriers to the formation of misfolded species, including the fact that nucleation – the initial development of very small, metastable oligomers of a protein – is a kinetically unfavourable requirement for fibrillogenesis. It seems that time, rather than great age, is required in that some aggressive protein-folding disorders can occur in young and early middle-aged individuals. [...] In some systemic amyloidoses, the basis... is a perturbation in its clearance. [...] A principal unanswered question... is the precise manner in which natively soluble proteins... undergo partial unfolding and aberrant refolding to produce highly stable... [...] Conditions of heat denaturation that lead to fibril formation ... heat-driven unfolding process [...] molten-globule-like... seed... hydrophobic core, pre-fibrillar assemblies [...] For example... in which the protein ... bears long glutamine repeats... neurons showing early inclusion formation are more resistant to... death. In this sense, inclusions of a misfolded protein might be protective because they sequester the aggregates, at least temporarily. This work and similar approaches... remind us that... powerful compensatory mechanisms – such as activation... – can decrease the accumulations of misfolded... or else enhance their clearance. [...] The insidious accumulation of misfolded proteins has dire consequences for the organism. Further progression on the two key questions – how soluble proteins begin to misfold and how the resultant oligomers initiate cell dysfunction – will offer exciting prospects for specific molecular interventions.' (Selkoe 2003)

### ***'Establish' in archaic and medieval 'advanced' knowledge***

(See also in Appendix A, <Table9\ Nexial-topologic vocabulary>, lines: \\ land altar, table, tabernacle, stablished, \\ gather, \\ water(s) and link to gravity-graveness)

- 'All this order and arrangement the goddess first imparted to you when establishing your city' (Plato, Timaeus)

- 'According to a Syrian tradition, Paradise was... established on a mountain higher than all others.' (Eliade 1954 p.16)
- *In the biblical Old Testament:*  
 'establish justice in the gate' AMOS 5:15  
 'to establish a weight for the wind' JOB 28:25  
 'You have appointed them for judgement; O Rock, you have marked them for correction.' HAB1:12  
 'For the vision (is) (yet) for (an) appoint(ed) (time).' HAB 2:3  
 '...appoint for themselves one head; \ And they (shall) come up out of the land, \ For great (will be) the day of Jezreel!' HOS 1:11
- 'If learners in the world establish discipline, maintain stabilization, and produce the light of wisdom, by these three powers they can last forever, treading the movements of energy light and clear, stabilizing transformation so as to transcend to immortality. [...] 'The true director of the infinity of the two mysteries of the right and left disseminates our Way among celestials and humans, inducing them to abandon deeds that cause impermanence and enter the subtlety of true unity, neither ageing nor dying, peacefully existing forever' (Cleary 2000 p.435, Unexcelled true scripture of inner experiences of jade purity, poem attributed to Sun Bu Er)
- '...in the *Historical Records*: "And now, when Your Majesty has consolidated the empire and, distinguishing black from white, has constituted a stable unity..."' (Waltham 1971, *Shu Shing* p.255)  
 'Find your repose in your proper resting point. Attend to the springs of things, study stability, let your assistants be upright; then shall your movements be grandly responded to as if the people only waited for your will. Thus you will brightly receive the favor of God. Will not heaven renew its appointment of you, and give you blessing?' (op. cit., *Shu Shing* p.32)
- 'We must deal cautiously with the favoring appointment of Heaven, at every moment and in the smallest particular.' Says the sovereign Shun whose function before reigning was to be the 'Grand Regulator.' (op. cit., *Shu Shing* p.35)
- 'A lapse [...] in the cyclical intercourse between the heavenly and the earthly energies [...] occurs when the[se] influences are off track: that is, they either do not depart on time or appear on time; the result is then instability in nature and disease in human beings.' (Ni 1995, *Neijing Suwen* p.277)
- '... biblical names are often used symbolically, including that of Israel ' (Vermes 1987 p.30)  
 'When these [the 3 priests] are in Israel'... shall be established' (Vermes, p.4) 'When these [the 3 priests] are in Israel, the Council of the Community shall be established in truth' (op. cit. p 4)  
 'The Master... shall teach them the nature of all the children of men according to the kind of spirit which they possess...Those born of truth spring from a fountain of light, but those born of falsehood spring from a source of darkness.... The Angel of Darkness leads... astray... But the God of Israel and his Angel of Truth will succour all the sons of light... For it is He who created the spirits of Light and Darkness and founded every action upon them, and established every deed (upon) their (ways).' (op. cit. p.43)
- 'appointed times and seasons and ways for the heavenly bodies' (Kieffer 2000 p.60)

### **'Establish' in modern 'advanced' knowledge**

- 'The habit of repeating the same matter under different symbols, and so of presenting it from different points of view, is a very noticeable formality of biblical apocalypics, and yet it has been strangely ignored by many expositors. [...] All such apocalyptic repetitions serve the twofold purpose of intensifying the divine revelation and showing that "the thing is established by God, and that he will shortly bring it to pass.' (Terry 1898)
- 'The Princeton Engineering Anomalies Research (PEAR) program was established to pursue rigorous scientific study of the interaction of human consciousness with sensitive physical devices, systems and processes common to contemporary engineering practice and is developing complementary theoretical models to enable better understanding of the role of consciousness in the establishment of physical reality'. (PEAR 2002)

- 'Axis formation occurs in plants, as in animals, during early embryogenesis. However, the underlying mechanism is not known. Here we show that the first manifestation of the apical-basal axis in plants, the asymmetric division of the zygote, produces a basal cell that transports and an apical cell that responds to the signalling molecule auxin. This apical-basal auxin activity gradient triggers the specification of apical embryo structures and is actively maintained by a novel component of auxin efflux, PIN7 and onset of PIN1 polar localization reorganize the auxin gradient for specification of the basal root pole. An analysis of *pin* quadruple mutants identifies PIN-dependant transport as an essential part of the mechanism for embryo axis formation. Our results indicate how the establishment of cell polarity, polar auxin efflux and local auxin response result in apical-basal axis formation of the embryo, and thus determine the axiality of the adult plant.' (Friml et al. 2003)
- 'The Electronic Ear lifts inhibitions immediately establishing effective vocal self-control or self-listening, [...]the electronic ear plays the part of the conductor of an orchestra. by adapting the student's listening to information...it regulates and the ear is guided by the Electronic Ear until it is automatically regulated...the act of teaching...is complementary to this auditory training approach.' (Tomatis 1991 p.87)
- The 'idealizing primal establishment of the meaning-structure "geometry"' (p.180)
- 'When the ergotropic system is activated, the entire body/mind becomes aroused. By comparison, the trophotropic system is "wired" for the fine tuning of organs in relation to each other as the demands of internal maintenance shift and change...The point to emphasise is that whereas the trophotropic system is designed for continuous activity. We are "wired" for short, infrequent bursts of adaptive activity interspersed with relatively long durations of rest, recuperation and growth...Prolonged ergotropic reactivity may cause depletion of vital resources stored by the trophotropic system in various organs, and may cause fatigue, shock, body damage, and in extreme cases, death (Selye 1956; Antonovsky 1979)... The particular balance of ergotropic and trophotropic activities under particular environmental circumstances is susceptible to conditioning... and there is evidence that their characteristic balance under stress is established as early as pre-and perinatal life (Grof 1976; [etc.]).' (Laughlin et al 1990 p. 316)

## Text extracts F9 – Deep Confusing Questions

In the course of a cross-field study of the scientific and human domains, one encounters some great questions that ‘affect all’, including daily living. Many authors turning to philosophy tend to have a bias on such questions, and present their ‘general’ answers (local to the world they see) through sweeping statements about their universal applicability, as great Truths, absolutes, ultimate Realities, or as potentials and ‘possibles’ *for all* to seek. Alternatively, out of humility, some present their answers as one little corner of a great ‘mystery’ that can never be fully known (it is approximate and uncertain). I have dubbed such questions ‘deep confusing questions’. The word ‘confusing’ indicates that trying to obtain a wholistic ‘big picture’ of the question by reviewing all the perspectives only creates confusion, if the conventions of representation are not addressed. The word ‘deep’ relates to the term ‘depth’ often attributed to the core of experience, the ‘fundamental’ questions of science and philosophy, and to the ‘not well understood’, the ‘lost’ (this is symmetric to the Scientific ‘breadth’ and its ‘hidden’). To these questions, I answered this:

- ‘The conclusion imposes itself that such frameworks as East-West-South-North (the Earth) and other perspectives develop topologically from a less differentiated way of apprehending situations, an undifferentiated global ‘place’ This word, ‘place’, is very common in ancient sacred texts and in modern daily life parlance alike. I propose that it may be understood as a topologic space. Therefore, its global or universal properties are relative to the local human instrument that apprehends them. On top of that, comes the biased perspective of limited, conventionalised observation.’ (Bouchon, May 2005, personal communication)

Below are some of the questions as formulated in the literature.

### ***The mysterious, the spiritual***

- ‘considering the personal, socio-cultural, ecological and ‘spiritual’ (and unknown / mysterious), and the complex interrelationships between them’ (Hill 2005)

### ***Obscure and cryptic terms: the Above & Below, Gathering & Return***

- ‘5. And they have stretched their cord across the void, and know what was above, and what below. Seminal powers made fertile mighty forces... ‘Below was strength, and over it was impulse.’<sup>8</sup>

<sup>8</sup> This stanza is obscure. A. A. Macdonell suggests that the ‘cord’ (*rashmi*) implies the bond of the preceding stanza; thought measures out the distance between the non-existent and the existent and separates the male and female cosmogonic principles: impulse (*prayati*) above and energy (*svadha*) below. (*A Vedic Reader for Students*, London: Oxford University. 1917, P. 210.)’ (*Who can say whence it all came from, Rig Veda*, X, 129, in Eliade 1996)

- ‘The Tî said, Alas! what are ministers? -- are they not (my) associates? What are associates?--are they not (my) ministers?’ [...] I wish to spread the influence (of my government) through the four quarters;--you act as my agents. I wish to see the emblematic figures of the ancients,--the sun, the moon, the stars, the mountain, the dragons, and the flowery fowl (= the pheasant), which are depicted (on the upper garment); the temple cups, the pondweed, the flames, the grains of rice, the hatchet, and the symbol of distinction, which are embroidered (on the lower Garment),--(I wish to see all these) fully displayed in the five colours, so as to form the (ceremonial) robes.’ (Legge 1879)

- 'The Classic says: women are a gathering place for yin influences, dwelling in dampness. From the age of fourteen (*sui*) on, their yin *qi* wells up and a hundred thoughts run through their minds, damaging their organ systems within. [...] Sometimes as they relieve themselves at the privy above, Wind from below enters, causing the twelve chronic illnesses.' (Furth 1999 p.71 – see also Christian notion of 'recollection')
- 'Return to Me, and I will return to you, Says the Lord of hosts, "But you said, In what way shall we return?" MAL 3:74

### **Whence from? Who knows or remembers?**

- 'Then <sup>1</sup> even nothingness [asat] was not, nor existence [sat].<sup>2</sup> There was no air then, nor the heavens beyond it. What covered it? Where was it? In whose keeping? [...] 'But after all, who knows, and who can say whence it all came, and how creation happened? The gods themselves are later than creation, so who knows truly whence it has arisen?' (*Rig Veda*, X, 129, v.6, in Eliade 1996)
- 'Afternoon came, and I meditated a little, but the same naked woman appeared. [...] As soon as I sat down, my meditation would start with full force... Almost immediately I was deep in *samadhi* and then suddenly full of sexual desire. The naked woman pursued me and stood before me... God knows where she came from; no one had invited her. She did not ask anything from me. She simply ruined my meditation, disturbed my sex organ....' (Muktananda 2000 p.108-9 – see <Extracts F14\ Mysterious Female>)
- 'After these soliloquies, both heroes [Aeneas and Hector, in the Greek *Iliad* poem] exclaim precisely the same astonished words: "But wherefore does my life say this to me?" If, indeed, such talks to oneself were common, as they would be if their speakers were really conscious, there would be no cause for surprise. [...] The earliest writing of men in a language that we can really comprehend, when looked at objectively, reveals a very different mentality from our own [...] and points back to a very different kind of human nature. We may regard the *Iliad* as standing at the "great turning of the times" and a window back into those unsubjective times when... every man was the slave of voices heard whenever novel situations occurred.' (Jaynes 2000 p.83)
- 'Where do the 4 directions of the universally accepted frame of geographical Earth come from? The 6 directions of the 3D space can be related to the body, but not just 4, even less 5. I am told to explore traditions and particular cultures — each with all sorts of fancy correlations or correspondences that can't be made to match. How did we invent the 4 flat directions? Where did the traditions get the East-West-South-North from? They say from Heaven, the gods, or from one 'Full Human' hero... who dreamed up 'Nature', 'the Earth' or 'The World', invented Time, or created the 'Life' of 'Humans'.... But how did he or she, how does a human get such ideas or pictures? I am back to my original question about the physical reality of my body and the 'natural survival' world that humans see! The only way to track back any further is through the 'obscure' shape-images of the Earth framework.' (Bouchon, March 2003, personal communication)

### **Where or what is that 'place'?**

- 'And where is the place of understanding? Man does not know its value. Nor is it found in the land of the living. The deep says "[it is] not in me". And the sea says "not with me". [...] It is hidden from the eyes...' JOB 28:12-14 & 21
- 'And there is a third nature, which is space, and is eternal, and admits not of destruction and provides a home for all created things, and is apprehended without the help of sense, by a kind of spurious reason, and is hardly real; which we beholding as in a dream, say of all existence that it must of necessity be in some place and occupy a space, but that what is neither in heaven nor in earth has no existence. [...] Of these and other things of the same kind, relating to the true and waking reality of nature, we have only this dreamlike sense, and we are unable to cast off sleep and determine the truth about them. For an image, since the reality, after which it is modelled, does not belong to it, and it exists ever as the fleeting shadow of some other, must be inferred to be in another [i.e. in space], grasping existence in some way or other, or it could not be at all. But true and exact reason, vindicating the nature of true being, maintains

that while two things [i.e. the image and space] are different they cannot exist one of them in the other and so be one and also two at the same time.' (Plato, *Timaeus*, Second Main Section, no.20)

'If the universal frame had been created a surface only and having no depth, a single mean would have sufficed to bind together itself and the other terms; but now, as the world must be solid, and solid bodies are always compacted not by one mean but by two' (Plato, *Timaeus*, First Main Section, no.5)

- '[ 248b] But the reason of the great eagerness to see where the plain of truth [*pedion [plain] Alêtheias [truth]*] is, lies in the fact that the fitting pasturage for the best part of the soul is in the meadow there, and the wing [248c] on which the soul is raised up is nourished by this. And this is a law of Destiny, that the soul which follows after God and obtains a view of any of the truths is free from harm until the next period,' (Plato, *Phaedrus* 248b,c)

- 'Who could understand what the Mysterious Pass is? Few genuine qigong masters understand it.' [...] 'Nobody could explain clearly why the Buddha sits inside the circle. Let me tell you that this is... the Mysterious Pass... It is called a world.' (Li Hongzhi 1998)

- 'Ever since the discovery of the kinship between the various Indo-European languages, scholars have puzzled over the original homeland of the Indo-European speakers. The similarities in their various languages pointed to a common ancestral language, and divergences were explained as the result of migrations from a shared place of origin.' (Feuerstein, Kak & Frawley 1995 p.52)

'By comparing phonetic and grammatical changes in diverse Indo-European languages, scholars have invented a series of hypothetical steps, suggesting a certain sequence among the languages involved. Moreover, reconstructing the lost Proto-Indo-European mother language...' (op.cit p.56)

### ***Is it real?***

- 'Only the action of the six derived trigrams is described here [section 6]. It is the action of the spiritual, which is not a thing among things, but the force that manifests its existence through the various effects of thunder, wind and so on.' (Wilhelm 1989 *I Ching, Shuo Kua* section p.272)

- 'The Buddha, considered as a spiritual principle and not as a historical person, is called 'Tathagata.' The original meaning of the term is no longer known.' (*Saddharmapundarika*, XV, 268-72, introduction and transcript in Eliade 1996)

- Hills, C., 1979, *Is Kundalini Real?* (in White 1979)

### ***Left and Right*** (see also<Extracts F10\ Left- and Right->)

- 'The true director of the infinity of the two mysteries of the right and left disseminates our Way [...] The one spirit pervades transformation, crystallizing and refining the original reality. The original reality is not something with form: It is neither existent nor non-existent. (*Unexcelled true scripture of inner experiences of jade purity*, poem attributed to Sun Bu Er , in Cleary 2000 p.435-6)

### ***'The Red' and other colours*** (see also<Extracts F11\ Red>)

- '... to lift the veil which the goddess [Isis] herself had boasted no mortal had ever withdrawn. To a student of Gnosticism, the Veil of Isis is one of the greatest enigmas, a mystery that is, perhaps, as profound as the Law of the Red Heifer...' (Kieffer 2000 p.xix)

- 'Beheading the red dragon' [of menstruation] (Furth 1999 pp.219-220)

- 'In the first chariot were red horses and in the second chariot black horses, with the third chariot white horses, and with the fourth chariot dappled horses — strong steeds, ... what are these...?' ZEC 6:2

### ***Questions of Origin***

- 'Did agriculture spread through diffusion or independent development? Are there any reasons why religion and magic might have been more important for the people of early Neolithic communities that they had been for their Palaeolithic ancestors?' (Nelson 205)

- ‘How did Egyptians find that the Pi relationship between the R-circumference (perimeter) of a circle and the L-diameter of that same circle remains constant, regardless of how big or small the circle? [...] How did they know it was close to 3.16?’ (Cooper, L. 1999)
- ‘Native American Geometry is a physical, proportional geometry that originates from the simple circle... one of the most popular and multi-cultural symbols in the human world. ... [and its developments are present in] religious symbols, corporate logos, and kindergarten classrooms. Generally, it begins with two points, and is guided by a few self-evident rules [that] maintain a similar methodological structure to the Middle Eastern tradition of classical geometry. [...] ‘Did the geometry have a single source and diffuse around the world over a period of several millennia? Or is there something about it, like stone working techniques, that made it independently accessible to the human mind in diverse cultures and civilizations?’ (Hardaker, 2000)
- ‘Why did humans adopt agriculture when it meant a more laborious life for them, one with less variety and more drudgery, less social communication and more lonely labor, and a poorer diet coupled with a loss of leisure? [...] Agriculture took more time and more energy than hunting and gathering, and yielded a less satisfying diet, a loss of equality between sexes and among individuals, and made war a permanent feature of human life. Why would any people have chosen such an exchange?’ (Nelson 2005)
- ‘Why do scientists grasp the importance of visual imagery, while most humanists accept the hegemony of the word? Scholarly publication in the humanities generally degrades imagery and in many ways. Many thick tomes have no pictures at all... Images when present, are often only “illustrative”, are often collected in separate sections, divorced from textual reference and therefore subsidiary.’ (Gould, 1995 p.40)
- ‘A huge amount of biological information is preserved in the growth records of teeth. Tapping into those records provides a tantalizing look at how quickly Neanderthals grew up and reached maturity. Neanderthals share a more primitive pattern... in which the slowing of enamel extension and crown formation are much less pronounced, indicating that the anterior dentition formed more quickly. Ramirez rozzi and Bermudez de Castro argue that this indication... is further evidence... for placing Neanderthals and modern humans in separate species. [...] The authors go on to make a number of more far-reaching claims [... and] argue for more rapid growth as a whole and earlier attainment of adulthood.... This inference follows from [...] the correlation between dental development and the pace of life history [which] is based on the timing of tooth eruption as opposed to crown formation and [which] therefore also involves root formation, it would be prudent to examine root development in Neanderthal teeth as well. [...] Sequence and timing are not the same thing [...] To account for the apparently overly rapid maturation,... given their large brains, and relying on life-history theory, [the authors] suggest that rates of adult mortality in Neanderthals must have been very high... So it is not clear what to make of the particular expression of these relationships in Neanderthals.... We will need more markers along the way to be fully confident that the trail of inference has reached the right destination.’ (Kelly 2004)

### ***Unclear***

- ‘Just what holism and nonseparability are supposed to be has not always been made clear, though, and each of these notions has been understood in different ways. [...] Whether this is true or not depends on whether it is possible to understand the results of simultaneous measurements in quantum field theory as reflecting some intrinsic physical property associated with the disconnected spacetime region occupied by the measurement events.”\_(section 1) [...] ‘It has been maintained that the puzzling statistics that arise from measurements on entangled quantum systems either demonstrate, or are explicable in terms of, holism or nonseparability rather than any problematic action at a distance. (sections 8,9) [...] The Aharonov-Bohm effect (section 10) also appears to exhibit action at a distance, as the behavior of electrons is modified by a magnetic field they never experience. [...] According to string theory (section 12), all fundamental particles can be considered to be excitations of underlying non-pointlike entities in a multi-dimensional space.’ (Healey 2004)
- ‘It would be very nice if the gods all wanted the same thing and could work together in perfect harmony. There is harmony, but not to our ears.’ (Sherman 2000)



## Text extracts F10

### Left and right: two 'hands' of quickening

'Left' and 'Right' are known to be important properties of the brain, with consequences for both experience and explanation. Left and right are intimately linked with the general value of optimisation or improvement of human living, and are of major importance in the syndromes of instability. The understanding of left and right as a topologic property of a human lifeworld (bending, twisting) is very confused by the multiplicity of views, as SunBu Er's and Job's biblical accounts (below) show. This puzzle still exists in the modern sciences that study physical chirality. The following statements also concern having and not having a left/right preferential mode, the improvement value of this, and the effects on body, mind and lifeworld.

- 'Laterality –it must be right – ... Children who... are poorly lateralized, and who are emotionally unstable or immature are all likely candidates for dyslexia. There is no reason why the remedy for such deficiencies could not be carried out within the school itself. [...] No doubt someone will ask, "What about the cost?" Surely to humanize a little child and make him into a man is something beyond price! '(Tomatis 1991 pp.168,169) 'Mastery of speech greatly depends on lateralization to the right of the audiophonatry circuit. If human beings wish to realize all their potentialities, they must be much more right-eared and right mouthed than left.' (op. cit. 1991 p.117) "Laterality it must be right' (op. cit. p.153)
- 'E. Bleuler notes that the child is not a little schizophrenic but a normally functioning though primitive being. "The schizophrenic will regress to, but not integrate at , a lower level; he will remain disorganized" (Arieti, 1959, p. 475). Regression is essentially disintegration of personality; that is *dedifferentiation* and *decentralization*.' (Von Bertalanffy 1968 p.214)
- 'Thus the pain-response-to-exercise curve was shifted to the right.' (Eriksson et al. 2000)
- 'To humans, self-direction appears to be connected with our representation of ourselves being upright. The most elementary self-direction to an adult human being is to the right or to the left, i.e. turning around the spine as a vertical axis.' (Feldenkrais 1981 p.126) ' Form the point of view of Functional Integration, [...] self-direction... has meaning only to a living animal in its environment.' (Feldenkrais 1981 p.126) [...] '... think of the coincidence, fact or design, that all the instruments are serving, connecting our senses to the outside distant world are located in the head. Sight (teleceptors), hearing, smell are directional.' (Feldenkrais 1981 p.127)
- 'By contrast, when people are in positive moods, upbeat, enthusiastic and energized - those sites are quiet, with the heightened activity in the left prefrontal cortex... He believes [it] is a quick way to index a person's typical mood range, by reading the baseline levels of activity in these right and left prefrontal areas. That ratio predicts daily moods with surprising accuracy. The more the ratio tilts to the right, the more unhappy or distressed a person tends to be, while the more activity to the left, the more happy and enthusiastic.' (Goleman 2003)

### ***A matter of orientation and localisation***

- 'To humans, self-direction appears to be connected with our representation of ourselves being upright. The most elementary self-direction to an adult human being is to the right or to the left, i.e. turning around the spine as a vertical axis. [...] all the instruments are serving, connecting our senses to the outside distant world are located in the head. Sight (teleceptors), hearing, smell, are directional.' (Feldenkrais 1981 p.126)
- 'In schizophrenia[...] In some cases, particularly the most serious, the voices are not localized. But usually they are...In some patients there is a tendency to associate the good consoling voices with the upper right, while bad voices come from below and to the left. (Jaynes 2000 pp.88,89,90)

### ***In the body: 'rib pain' on the right side***

One common symptom, little mentioned in modern medicine, appears to have been better known in the past: rib pain on the right side (see Despeux & Obringer 1997 pp.91, 92, 100, 104, 156, 216, 245), or 'pain in the side' (Furth 1999 p.81). The closest in Western biomedicine appears to be costochondritis, of 'unknown cause', common in children and adolescents, and the controversial Thoracic Outlet Syndrome in women. See also illnesses 'due to worms' and to 'wind' (Despeux & Obringer 1997 p. 73) and 'water illnesses' (op. cit. p. 118). There are connections also to medieval female 'green sickness' in girls at menarche or 'White Fever' (coined by medieval women themselves), which King (2004) has linked to some of the low-grade syndromes (see <Extract F4\ Syndromes of instability). 'Green sickness' can be 'cured' by pregnancy (semantically drifted into marriage – this is a prehistoric behavioural cure strategy already seen as ancient in archaic texts). 'White fever' is the most adequate name for a bloodless face and bodily wasting that correlate with reactive, feverish activity, including allergy and periods of 'histamine flush' and 'hot flashes'. Histamine is known to be an 'integrator' of the perceptual body schema – 'body' as separate from environment, 'skin encapsulated [Watts, undated]). Gender differences in health are related to hormonal effects, and linked to brain lateralisation in many ways, in modern medical explanation and practice. For example, the contraceptive pill is used to correct 'masculinisation' and acne in young girls (compare to King 2004). In my experience, such activation that manifests in rib pain also correlates with testosterone increase and 'masculinisation' of both body and mind (intellect). My observations suggest that these effects involve also immune activation, with a Left-Right bias. If one accepts the validity of physical health interpretations of the oldest archaic texts, which often involve gender differences, then one-sided sensations in the ribs, related to swelling or inflammation, could be linked to the (semantically very drifted and inverted) biblical story in Genesis. The rib of Adam from which Eve is made, which is related to the 'Fall of man', could be a remnant of understanding of global effects (on the human lifeworlds) of activating the body's vertical axis. The following are extracts related to rib pain.

- 'At the time these four chambers appear, the heart starts bending into an S shape... This bending occurs because the ventricle and bulbus cordis grow quickly and the heart is unable to accommodate elongation within the confines of the pericardial sac.' (Marieb & Mallatt 2003 p.538)

- ‘...you shall not turn aside to the right hand or to the left... that you may live and that it may be well with you and that you may prolong your days in the land...’ *DEUT.* 5:32
- ‘Four simple steps to deep, dreamless sleep: 1. Lie on your stomach and turn your head so that your right cheek is on the pillow. This will automatically free up your left nostril to bring in the cooling, soothing, calming energy. [...] 4.... By the way, it is better for your heart and your digestion to sleep on the right side than the left. Plus, of course, it keeps your left nostril open.’ (Shakti Pawha 1996 p.112)
- ‘Lying towards the right side is favoured because the heart is not obstructed and according to Buddhist medicine it supports a happy peaceful mind, by blocking the right channel. The Buddha passed away lying on his right side.. Buddhist scriptures say to block the right nostril with the ring finger, face resting on the right hand.’ (Amithaba Hospice Service 2006)
- ‘And I also have given you cleanness of teeth in all your cities and want of bread of in all your places: yet you have not returned unto me, saith the Lord’ *AMOS* 4:6
- ‘In Hatha-Yoga, one technique of meditation consists of breathing in turn through the alternate nostril (*pr\_an. \_ay\_ama*), apparently to synchronize" the activities in the two hemispheres.’ (Kak 2000)
- ‘The effects of 10 min forced alternate nostril breathing (FANB) on EEG topography were studied in 18 trained subjects.[...] suggesting that FANB has a balancing effect on the functional activity of the left and right hemisphere.’ (Stancak & Kuna 1994)
- ‘Alternate nostril breathing (ANB) may modulate cardio-respiratory and autonomic functions. [...]These results suggest that in general there is a tilt towards parasympathetic dominance by alternate nostril breathing. This breathing may be a useful adjuvant to medical therapy of hypertension and COPD.’ (Srivastava, Jain & Singhal 2005)
- ‘There is increasing interest in the fact that breathing exclusively through one nostril may alter the autonomic functions. [...]The ‘right nostril pranayama’ group showed a significant increase, of 37% in baseline oxygen consumption. The ‘alternate nostril’ pranayama group showed an 18% increase, and the left nostril pranayama group also showed an increase, of 24%. This increase in metabolism could be due to increased sympathetic discharge to the adrenal medulla. [...]These results suggest that breathing selectively through either nostril could have a marked activating effect or a relaxing effect on the sympathetic nervous system.’ (Telles, Nagarathnam & Nagendra 1994)
- Self-report – ‘*Partly hidden upsides to using ROBERTA every day: health: [...] I no longer wake up with clogged sinuses; my body feels relaxed; and free of headaches, my skin is clear, I’m more careful what I eat, I remember to exercise and I put more energy into it.*’ (Lifetools, 2005)
- Self-report – ‘One morning I had painfully clogged sinuses. No amount of blowing gave me relief. But two minutes of Qigong had my sinuses draining and completely pain free. For me these common occurrences have made the course valuable beyond estimation.’ (Bissonnette 2006)
- ‘Author and inventor Ray Kurzweil takes 250 supplements each day...his worst sickness in the last several years has been *mild nasal congestion*.... [His] father and grandfather suffered from heart disease (and he) was diagnosed with type2 diabetes in his mid-thirties [which he] controlled without insulin [with nutrition].’ (Chamber 2005, my italics)

### **Setting shield, locating, and ‘vertical power current’: reenter the body**

‘ [A book] to look behind the “real” of our present-day ... knowledge. [...] The eighth level shield. [...] The left hand makes an opening for setting the shield... penetrates deep into the body to the root... while the right hand slowly moves it into place... The shield protrudes... slightly angularly out from the body... The left hand... separates the upper anatomical part... from the area where the trauma is located. At the same time, the personal guides of the patient usually take him out of his body to protect and teach him. [...] Any amount of forcing simply disrupts... and forces... to start over. [...] In a sense, in the higher level of healing, the trauma is treated as if it has its own being, since it is an integral piece of energy-consciousness. [...] The shield allows for smooth integration of the change... and prevents any disturbance... which would occur if the patient were not shielded... the cavity is filled... The new... field is then reconnected to the field around it, all of which is still located under the shield. The open exit

area at the base of the shield is then covered with a... seal. [...] She slowly sinks her right hand... where her left hand... is seated. This releases the left hand, which is then used to integrate the new restructured and shielded area to the rest of the patient's auric field.... slowly moves the left hand through the upper part..., reconnecting the fields. After setting the shield, the healer then strengthens the main vertical power current... in the body. The patient slowly reenters the body. [...] By the time this was completed, the trauma.... had turned to white light. [...] Healing session format: [...] measure... record... attune and align... align and balance.' (Brennan 1987 p.231-233)

### ***The mystery of 'The Left' and 'The Right'***

- 'The true director of the infinity of the two mysteries of the right and left disseminates our Way [...] The one spirit pervades transformation, crystallizing and refining the original reality. The original reality is not something with form: It is neither existent nor non-existent. '(Unexcelled true scripture of inner experiences of jade purity, poem attributed to Sun Bu Er , in Cleary 2000 p.435-6)

- '...human beings who cannot discern their right hand from their left hand' JONAH 4:11 (myth from oral tradition of 'East wind', edited circa 350<sub>BCE</sub>)

'Study notes: that cannot discern between their right hand and their left - -children under three or four years old. (DEUT 1:39)' – Retrieved from:

[http://bible.crosswalk.com/Commentaries/JamiesonFaussetBrown/jfb.cgi?book=jon&chapter=4#Jon4\\_11](http://bible.crosswalk.com/Commentaries/JamiesonFaussetBrown/jfb.cgi?book=jon&chapter=4#Jon4_11)

- 'and I -- have not I pity on Nineveh, the great city, in which there are more than twelve myriads of human beings, who have not known between their right hand and their left ' JONAH 4:11 (myth from oral tradition of 'East wind', edited circa 350<sub>BCE</sub>)

- 'that Pan first found out military order & constituted the right wing & the left (whence his effigies was formed with horns... & carried in his hand a sickle' (Newton 2996a)

### ***Evaluation (L-sinister, R-dexter)***

- 'Many peoples of the world consider the left hand a shameful hand. [...] This distinction of the left hand as inferior, or shameful, is an ancient concept that is reflected in today's Middle East and shows up in Biblical events. [...] this relates to the Old Testament concept of God's right hand of blessing.' (Jenkins 2002)

- 'Only be strong... do not turn... to the right hand or to the left' JOSH 1:7

- 'The heart of the wise inclines to the right, but the heart of the fool to the left.' EC 10: 2

- 'the right eye and ear are not as strong as the left, and the left hand and foot are not as strong as the right'. (Ni 1995 *Neijing Suwen* p.23)

- *Ch'i wu lun*, the title of a chapter in the *Chuang Tzu*, is translated as 'the sorting which evens things out.' (Graham 2001 p.33)

- Compare to the concepts used by the early Han Syncretists in China:

spontaneous response (*ying*), adaptation (*yin*), compliance (*hsü*), suitability (*i*) (Roth 1999 p.196)

- 'God corrects. [...] He wounds but His hands make whole' JOB 5:17-18 'Behold, I go forward, but he is not there; and backward, but I cannot perceive him: on the left hand, where he doth work, but I cannot behold him: he hideth himself on the right hand, that I cannot see him.' JOB 23: 8-10 Even today my complaint is bitter; his hand is heavy in spite of my groaning. If only I knew where to find him; if only I could go to his dwelling!' JOB 23: 2-3 'But if I go to the east, he is not there; if I go to the west, I do not find him. When he is at work in the north, I do not see him; when he turns to the south, I catch no glimpse of him.' JOB 23: 8-10 'But he knows the way that I take; when he has tested me, I will come forth as gold. My feet have closely followed his steps; I have kept to his way without turning aside.' JOB 23: 10-11 'That is why I am terrified before him,' JOB 23: 15 'They swing to and fro' JOB 28:4

[I consider the *JOB* text a 'perspectivalist' work, reviewing the same story in various shifted meanings, mentioning the directions of the Earth. Some statements are similar to modern

complex science: scatter the cloud mass, and to nutrition science: moisture saturates clouds, poisoning of the cloud, etc.]

- ‘The world turns in a counter-clockwise direction with respect to the north-south axis, and this left-turning is also characteristic of living cells. ...“Children achieving well socially and academically during the developmental years draw circles in a counterclockwise direction with either hand. The tendency to draw circles in a clockwise direction is called torque. Aberrant behavior is found more frequently in samples of children showing torque than in those with no torque. The resulting confusion of mixed cerebral dominance interferes with the child’s acquiring important cognitive, language, and social skills”. ‘ (Blau 1977 in Kieffer 2000 p.114)
- ‘He seals the hand of every man.’ *JOB 37:7* [Elihu speaks]
- ‘ “He penetrates the left side of the belly. One gets at the very heart of the darkening of the Light.” [Wilhelm commentary on Ming I: The name of the hexagram means literally “wounding of the bright”; [...] We find ourselves close to the commander...’ (*I Ching*, 36. *Ming I, Darkening of the Light*, in Wilhelm 1989 p. 139)
- ‘Better is a handful with quietness, than two handfuls with labor and chasing after wind.’ (Ecclesiastes 4:6)
- ‘...we will not turn to the right hand nor to the left until we have passed thy borders’. *NUM 20:17*
- ‘You will show me the path of life; in Your presence is fullness of joy, at thy right hand there are pleasures for evermore.’ *PSALM 16:11* [The expression ‘path of life’ is used in Chinese literature as well.]
- ‘And he causes both small and great, rich and poor, free and bond, to receive a mark in their right hand or on their foreheads.’ *REV 13:16*
- ‘Throughout the O.T there is used what are called anthropomorphism to describe God in some function or characteristic. [...] The term at the right hand of God points to his exalted position he now is active in. The phrase right hand is a figurative expression [...] this is figurative language describing a certain characteristic of God it is describing his divine actions from a human view point.’ (Oppenheimer 2005)
- ‘The use of this anthropomorphism [‘right hand of god’] occurs in 39 references in the Old Testament. The primary thought behind these passages is it is a "Hebrew Idiom" [that] denotes power and strength.’ (Hughes 1997)
- ‘If I walk in the midst of distress Thou quickenest me, Against the anger of mine enemies Thou sendest forth Thy hand, And Thy right hand doth save me.’ *PSALM 138:7*
- ‘that your own right hand can save you’ *JOB 40:14*
- ‘No one (is so) fierce that he would dare stir him up’ *JOB 41: 10*
- ‘Moses slaughtered the ram and took some of its blood and put it on the lobe of Aaron's right ear, on the thumb of his right hand and on the big toe of his right foot.’ *LEV 8: 23* [Jehovah speaks]
- ‘Lo, He slumbereth not, nor sleepeth, He who is preserving Israel. Jehovah [is] thy preserver, Jehovah [is] thy shade on thy right hand, By day the sun doth not smite thee, Nor the moon by night.’ *PSALM 121:5*
- ‘You have also given me the shield of your salvation, and your right hand has holden me up’ *PSALM 18:35*.
- ‘Please let us pass through your country. We will not go through any field or vineyard, or drink water from any well. We will travel along the king's highway and not turn to the right or to the left until we have passed through your borders.’ *NUM 20: 17*

- 'He holds his staff with his right hand and with his left hand he balances on his right shoulder the staff from which the bag is hanging. His head is turned three-quarters to the right. So it is the Fool who has the tendency to the right.... the Fool [clown] of good, not of evil.' (Powell 1880 in Kieffer 2000 p.590-1)

### **Modern scientific chirality**

Following are quotations that display a large range of approaches to that 'mystery of the left and the right'.

- 'A land-snail species of polyphyletic origin result from chirality constraints on mating. [...] Speciation accompanying the left-right reversal of the entire ontogeny (chiral speciation) is unique to snails and can be visualized by the coiling direction of their shells. The chirality (or handedness) – occurring as a 'sinister or 'dexter' forms) of snails is determined by the maternal nuclear genotype at a single locus. Because of the physical difficulty of two-way copulation between snails that have opposite coils, frequency-dependant selection occurs to eliminate the chiral minority.[...] First, the sinistral taxa are all derived from a single sinistral ancestor. Second, reversal to a dextral species from the single ancestor has occurred in at least three independent lineages, third,, all of the haplotypes of a dexter *E. aomoriensis* are included within a sinister *E. quaesita*. [...] Both mitochondrial-DNA phylogeny and a similar shell morphology indicate that *E. aomoriensis* is derived from *E. quaesita*. *E. aomoriensis* is not merely a dextral morph of *E. quaesita*., as the two differ in shell sculpture although they are partly sympatric. We conclude that *E. aomoriensis* has speciated from *E. quaesita* by virtue of its chirality [...] Chiral reversal is therefore an acute pre-mating mechanism of isolation. Reversal to dextral species has occurred multiple times after only sinistral evolution, so chiral speciation must have been easier to the dexter than to the sinister.[...] Any introgression must therefore have been limited to a short time before chiral fixation. Ancestral polymorphism would not easily survive chiral speciation in small, isolated populations.' (Ueshima & Asami Takahiro, p.679)
- 'Glycine R=H the smallest and most flexible amino acid. The only achiral amino acid.' (Kahn, 2003)
- '... not only are the L-amino acids more stable than the D, but the natural D-sugars are more stable than the L, and the right-hand DNA double helix is also more stable than its left-hand mirror image. . [...] Radioactive beta decay is mediated by the weak force, and this causes a polarization of the electrons emitted in beta decay, which could produce selective destruction of one enantiomer. We are currently starting to develop the theory of this enantioselective beta-radiolysis. [...] the highly chiral chlorophyll molecules in vegetation [...] the weak force theory of the origin of chirality.' (MacDermott 2006)
- 'Consider the ghostly neutrino. This elementary, subatomic particle carries with it not only an uncanny reminder of a time eons ago when symmetries were perfect, but also a clue as to how they came to be broken. For every neutrino that now spins to the left, there was once one that spun to the right: these parallel twins were destroyed in the "Big Bang," that cosmic apocalypse that, most scientists now agree, created the universe. And this decay of symmetry is reflected in the building blocks of organic life as well. The helical structures of our own genetic material spiral to the left; no right-turning counterparts exist. The left hand of creation has a long reach indeed, extending from the beginning of time to the miracles of life we witness everyday. [...] We examine the black body radiation still detectable in space today (once the predominant constituent of the universe, now a cosmic fossil of the primeval fireball)' (Barrow 1994: *The Left Hand of Creation*)
- 'The question of how things came to be structured as they now are...As an action, intelligent design entails... the hand-like action of constructing or assembling' (Van 2003)

## Text extracts F11

### Red, Mark on the face (forehead) – a topographic surface phenomenon –

'Categories of experience need not mirror the nexus of real events but must, with a certain tolerance allowed, be isomorphic to it...it is sufficient that a certain degree of isomorphism exists between the experienced world and the "real" world so that the experience can guide the organism in such a way as to preserve its existence...The "red" sign is not identical with the various hazards it indicates... thus "red" is isomorphic to "stop".' (Von Bertalanffy 1968 p.241)

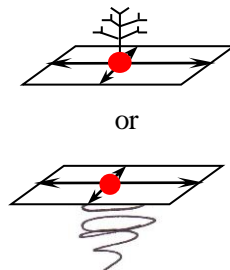


Figure 40.  
Red face mark

Colours, such as 'red' are a major element of 'correspondence' thinking in antiquity, but also of archaic myths and prehistoric human activities (eg red ochre and charcoal black in cave painting). Here, we focus on archaic or neolithic meanings, and related associations to daily life sensations.

#### **Red as heat, inflammation, irritation**

Red is associated, in the body, with sensations of heat, and this is used to make correlations between the body and mystic processes:

- 'St. Catherine of Genoa was a 15<sup>th</sup> century Italian [mystic.] She frequently reported unbearable heat as well as ecstasy and she endured long periods unable to... take any food or water. [...] Her body turned completely yellow, and remained so after death., when it appeared dried up. [...] In the acupressure system, the big toe is the source pint of the spleen meridian [...] which] is said to have peculiar affinity for certain aspects of sexual maturing.' (Greenwell 1990 p.118-119)

In Western medicine, red and heat are associated with physical inflammation, particularly of the joints:

- 'The term arthritis describes over 100 kinds of inflammatory or degenerative disease that damage the joints. [...] An inflammatory response follows... producing an agonizingly painful attack of gouty arthritis, or gout. The initial attack involves a single joint, usually in the lower limb, often at the base f the big toe.' (Marieb & Mallatt 2003 p. 236-7)

In popular culture, red, heat and the emotion of anger recal archaic notions of 'Fire'. Inflammation, in turn, is often explained in terms of 'irritation'. 'Irritation' is exactly the effect ascribed, in medical literature, to contraceptive mechanical devices – but this is not transferred into patient education literature. Yet, it can be a quite concrete and physical female experience. Problems with menstruation and menopause are usually ascribed to hormones, and this causes many problems in medicine, theoretical and in clinical treatment,

but few researchers ask questions about this assumption, or enquire into the connection between tissue degeneration of the uterus and the immune system.

### ***Red Female Blood***

Female menopause is one of the ‘not well understood’ phenomena of health, one that challenges many conventional explanations. Menstruation is variously valued, even by women themselves, depending on their daily life experience of it (eg painful or not, sense of activated creativity or emotional chaos, etc.). Menstruation and pregnancy are a double edged sword for female health, and often result in health damage that gives women their cultural reputation for weakness, and ultimately in menopause (nearly everyone agrees that menopause is a health disaster, even if it can be compensated by ‘raising spirit’). The association of the colour red with female blood is a very old one traceable to prehistoric and archaic cultures, and it is carried on, in modern literature, associated with empowered female creativity, psycho-spiritual processes, and Creation (eg Grahn, 1993, Livingstone 2005) and the appearance of the ‘Human’:

- ‘The blood of the female and the vivifying fire of the male are the two factors of human creation... regenerated in baptism, reborn and saved, as by Fire and Blood, or the Water and Breath’, in the purifying rite.’ (Kieffer 2000 p.14)

The colour red is also characteristic of the female framework of the ‘East’, still visible in correspondences of elements and colours in ancient traditions (eg left, east, spring, redness in Despeux & Obringer 1997 p. 73). Red also has a link to the colour yellow (see <PPT1 Body> presentation), which develops into perspectives related to green, but this is less well understood.

### ***Red and Pregnancy cure***

A number of female conditions can be approached usefully through the denomination of ‘syndromes of instability’ (see <Extracts F4\ Syndromes of instability>). They have confused physicians since medieval (and possibly ancient times) under various names such as ‘white fever’, ‘green disease’, or ‘chlorosis’ (in girls at menarche – King 2004) and in women at other life stages (Furth 1999). These are also related to coughing syndromes (Despeux & Obringer 1997). The forms of these fatigue-pain-instability syndromes are investigated in human sciences but are considered different illnesses, or fictitious in medical science. I found consistent descriptions in the archaic literature, but they do not differentiate the body’s from the person’s behaviour.

### ***Cured by pregnancy***

One of the characteristics of such syndromes is puzzling for all medical frameworks. They can sometimes be cured by pregnancy (this ideas often drifts into marriage as a cure):



- ‘Jacobi... mentioned what he called “chloro anemic girls” who could often be cured by pregnancy..’ (King 2004 p. 138)  
‘... his own recommendation of marriage as a cure, because this will remove any obstacle preventing the blood from flowing out, and “if they become pregnant, they will be cured”. However, the last lines of the text warn, even married women may suffer this way if they do not have children.’ (op.cit. p.50)

Some women just ‘love being pregnant’ for this reason [in my case only the middle of pregnancy ‘cured’ instability, after activation of growth and before re-activation for birthing labour]. A similar phenomenon, in even known in Western medicine:

- ‘The course of rheumatoid arthritis is variable: it may develop gradually or in spurts that are years apart, and it is marked by flare-ups and remissions (rheumat, from the Greek, means “susceptible to change”). [...] It affects three times as many women as men, and wanes when a woman is pregnant.’ (Marieb & Mallatt 2003 p. 237) (This is also the case for acne.)

Yet there are few mentions in the literature of this phenomenon which, instead, is often shifted into institutionalised habits of marriage to cure young girls (King 2004, and archaic texts). A correlate notion in archaic texts ascribes settling male sexual drive by marriage, an idea that can make sense:

- ‘She regarded menstruation and male nocturnal emissions as equivalent, representing “the natural healthy actions of self-balance”; both occur spontaneously in healthy people, and can frighten young people.’ (King 2004 p.136)

### ***‘Beheading the Red Dragon’***

Women have dealt with the problem of pain, fatigue, swelling, temperature dysregulation, and progressive damage from instability in menstruation and menopause in another, little known way that is not taken into account in any medical framework. Through the process of ‘beheading the red dragon’ in female Chinese inner alchemy, they attempted to stop menstruation and/or restore the damage done by menopause (Despeux 1990 pp.244-268, Furth 1999 pp.219-220, Despeux & Kohn 2003 p.204, 223-241). This is related to the ‘cure’ by pregnancy, as well as that by activation of survival mechanisms of physiology and metabolism. Whether this process is actually effective or not, its significance should be investigated in the physical terms of medicine, without psychosocial explaining away: the cycles deemed good and even necessary by medical, social, and other explanations, and discussed since archaic times, are not necessarily felt as such by *all* women. Why?

### ***Is menstruation ‘healthy’ for females?***

Despite the wide agreement that women or humanity are better off, individually or collectively, if female physiology is ‘regulated’ by menstruation, a few rare voices do not subscribe to this rarely examined presumption:

- ‘Soranos, who wrote in the second century AD, ... argued that, apart from its contribution to conception, menstruation is actually bad for women’s health (Gyn.1.27-32; Temkin 1956:23-30. But his views were eclipsed by the development of the Hippocratic.Galenic tradition, and the belief that menstruation was essential to maintain women’s health was still unanimously accepted in the seventeenth century.’ (King 2004 p.11) (see also Power Point presentation <PPT2 Body>).

### ***Indian Cosmogony: positive and female***

#### ***Indian Bindi: Holy Red Drop***

The word *bindi* is derived from the Sanskrit word *bindu*, which means "drop". In Northern India, this red mark is worn by married women, and it is supposed to bring good fortune, and to make the bride the preserver of the family’s honour and welfare. Throughout India, many believe the little red dot symbolises the mystic third eye (for both men and women). It now has become a fashion item and a mere symbol, and there seems to be *only* linguistic and symbolic explanations. I could find no literature or interlocutor capable of explaining to me ‘whence from’ this ‘red dot’ came in actual human experience (eg a psychic, cognitive or physical experience).



Figure 41.  
Holy red dot  
(Kamat 2006)

#### ***‘Red’ as a visible but subtle physical Red Spot***

(This is one of the nexial-topologic observations that I was able to reproduce.)

I found, however, in my own health states, something that could be a physico-behavioural source. I observed something that appears directly related to this. In an adaptive state, the body is chronically dehydrated, albeit at low grade, and slightly swollen systemically. This manifests as a slightly reddish spot right between the eyebrows (a little lower than on this picture) that is very dry, almost flaky. The colouring, however is slight, light enough to not be noticed by other modern people (even a doctor).

This spot has occurred on a number of repeated occasions. It occurs in both increasing activation and decreasing activation of the stress-work-fight-think mode I experience as a ‘surVival’ mode (‘life’ sur-activation). It is a topographic sign, indicator or marker, of going through a threshold that last for a time (from one to several days). In the conventional deployment of perspectives, this event would be seen as a good thing, related to the capacity to adapt. In my nexial-topologic view, it is the reverse: the spot denotes the use of brain-central-control to cope, work, defend, etc., and it is a difficult time. Below are some quotations concerning ‘The Red’ in ancient human forms of experience and explanation.

#### ***Blemishless, Blameless***

In archaic frameworks, ‘The Red’ is associated with beauty and a ‘blemishless’ body for women, or (in earlier myths) for a woman’s baby and humans in general.

- ‘bodies free from stain, with signs that mark them’ (Rig Veda hymn 181, *in*. Griffith 1898)
- ‘This (universe) existed in the shape of Darkness, <sup>1</sup> unperceived, destitute of distinctive marks, unattainable by reasoning, unknowable, wholly immersed, as it were, in deep sleep.

<sup>1</sup> note by Eliade: *Tamas*, a darkness both physical and mental. The Samkhya system finds considerable significance in this stanza: *tamas*, one of the three twisted strands (*gunas*) of cosmic substance, represents inertia. (The Laws of Manu 1, 5-16 in Eliade 1996)

- 'This account, preserved in the tenth chapter of Genesis, could only have been kept by the black race, the "blameless Ethiopians". ' (Kieffer 2000 p.68) 'The Ethiopians are called by Isaiah a people of great might or double power.' (op.cit. p. 69)

*Muktananda*: Red in the 'High Above' (high spirit) is a light of mind

- 'So the Chiti Shakti enters the Siddha student and... performs many functions. Its first task involves the red petal, which is eight hands high, the same length as the human body. This body is the vehicle for experiencing happiness and pain, and it is through this body that sins are committed or good deeds performed..' (Muktananda 2000 p.97) 'The red body is the experienter in the waking state... The individual soul in this body is represented by *a*, the first letter in *Aum*.' (op.cit. p.98)

'Meditation at the red stage... is meditation in the gross body.' (op.cit. p.103)

'Later, however, I learned that this was a hatha yogic process effected by the goddess Kundalini\*, in order for Her to move up through the spinal column into the *shasrara*. Sometimes as my neck rotated, my chin would get fixed in the jugular notch below the throat. This is a divine hatha yogic contraction, or lock... As this *bandha* took place, there was another movement below - my anus would be automatically drawn in and then released. [...] All these movements [physical *kryias*] happened spontaneously; I was learning about yoga through inner inspiration. (op.cit. p.103)

'Then a ruinous kind of meditation came to me - a sensual meditation, a meditation of desire. How disgusting it was! I saw the red light,[...] When I shut my eyes, I saw, right in front of me, a beautiful naked girl inside the red light. Even though I didn't want to see her, she appeared. Full fear and remorse, I opened my eyes. I still saw the divine red light. Within it, Jagadamba, the naked girl, still stood ... It was all being forced on me against my will. ' (Muktananda 2000 p.107) 'I meditated a little, but the same naked woman appeared.' (op.cit. p.108-9)

### ***A negative or positive indicator': red mark on the forehead***

The notion of a 'red mark' or a 'marking' is sometimes interpreted positively, sometimes negatively (compare also to the 'two hands' in <Extract F10\ Left-Right>):

- [In the *Shu Ching* ] 'The five punishment used are branding on the forehead, cutting of the nose, cutting of the feet, castration, and death inflicted in various ways.' (Waltham 1971 p.11)
- 'The Celestial Eye will be squeezed to feel great pain, and the temples will also feel swollen with the eyes feeling as if they are digging inward until it squeezes out and hangs in front of the forehead all at once. (Li Hongzhi 1998)
- '(65) 'There thou shalt make waters flow [...] (80) 'There shall be no humpbacked, none bulged forward there; no impotent, no lunatic; no one malicious, no liar; no one spiteful, none jealous; no one with decayed tooth, no leprous to be pent up, nor any of the brands wherewith Angra Mainyu stamps the bodies of mortals.' (*Ahura Mazda teaches Yima How to save the best and fairest*, in Eliade 1996)

### ***Biblical Old Testament: mark of rising or correction, to seal***

- 'At ease I have been, and he breaketh me, And he hath laid hold on my neck, And he breaketh me in pieces, And he raiseth me to him for a mark.' *JOB* 16:12  
'I was at ease, but he hath broken me asunder: he hath also taken me by my neck, and shaken me to pieces, and set me up for his mark.' *JOB* 16:12

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\* For the yogic process (or Goddess) called 'Kundalini', and its Westernised forms and interpretations, see: Bentov 1978, Greyson 1993, Harris 1994, Hills 1979, Johari 1987, Kieffer 1998, Krishna 1971, Lukoff, Lu, & Turner 1992, Narby 1998, Sanella 1992, and <Endnote C6\ Core culture & Kundalini>.

'to establish a weight for the wind' *JOB* 28:25

'My face is foul with weeping, and on my eyelids is death-shade;' *JOB* 16:16

'establish justice in the gate' *AMOS* 5:15

'You have appointed them for judgement; O Rock, you have marked them for correction.' *HAB*1:12

'Behold the swelled-up, his soul is not upright in him' *HAB* 2:4

'My covenant was with him, one of life and peace.' *MAL* 2:5

'She has not received correction' *ZEPH* 3:2

'And will make you like a signet (ring)' *HAGG* 2:23

### ***In the New Testament: gift of God, 'mark of the beast'***

- '... to lift the veil which the goddess [Isis] herself had boasted no mortal had ever withdrawn. To a student of Gnosticism, the Veil of Isis is one of the greatest enigmas, a mystery that is, perhaps, as profound as the Law of the Red Heifer...' (Kieffer 2000 p.xix)

- '... that they bring you a red heifer without blemish, in which there [is] no defect [and] on which a yoke has never come' *NUM* 19:2

- 'To Abraham, who was childless and landless, God offered posterity and country provided that he led a perfect life and marked his body and that of all his male progeny with a visible reminder of the Covenant between himself and heaven – circumcision.' (Gen. XVII, 1-14). (Vermes, p.37)

- 'And he caused all, both small and great, rich and poor, free and bond, to receive a mark in their right hand or on their foreheads.' *REV* 13:16

'So that no one could buy or sell unless he had the mark, which is the name of the beast or the number of his name.' *REV* 13:17

- 'A third angel followed them and said in a loud voice: "If anyone worships the beast and his image and receives his mark on the forehead or on the hand,..."' *REV* 14:9

- 'And then the children of Israel, the whole congregation, came into the Wilderness of Zion in the first month.... Now there was no water for the congregation; so they gathered together against Moses..... Why have you brought up the assembly of the Lord into this wilderness that we and our animals should die here?' *NUM* 20: 1-4

### ***Mark of growth***

- 'A sixth conclusion we draw is that, although the world needs a shared perceptual framework from which to build a sustainable future, this does not mean we should seek cultural homogeneity and human uniformity. After surveying the growth and decline of the world's civilizations, Arnold Toynbee found a master process at work in the disintegration of societies, which he called a "tendency towards standardization and uniformity". Diversity within unity is the mark of a growing species-civilization.' (Duane 1997 p.21)

## Text extracts F12

### Mysterious pass, Mysterious place, ball, primary & secondary

(See also <Extracts F9\ Deep confusing questions>, <Extracts F13\ Sanjiao & inversion>.)

In Chinese medieval writings, the 'Mysterious' is sometimes a female figure experienced as real (see <Extract\ F14\ Mysterious Female>), sometimes a 'place' and sometimes a 'pass'.

#### **As a 'Pass'**

As a pass, it is often called a gateway, gate, portal or door, or an eye (to pass through). In Chinese inner alchemy, one preferred name is the 'Mysterious Pass' (Furth 1999 p. 192-3, Li Hongzhi 1998, Wong 2000 p.121).

These have been, of course, understood for a long time as spiritual processes, secret or difficult or dangerous to apply, and the medieval period is pervaded with confusion about them: ' Serious practitioners have heard about these processes, but no one knows how they can liberate us from the dust of the world.' (Wong 2000 p.121). Dominant culture tends, instead, to deny their existence, or engage in bickering about them, between spiritual schools, or turn them into a social science as did some ancients: 'establish justice in the gate' (*AMOS* 5:15).

#### **As a 'Place'**

As a place, it may be 'the valley' (Wong 2000 p.119) (compare to 'Abyss' and 'Pit' in other ancient bodies of literature, and to the cups, crucibles, and cones of arcane knowledges) and the 'Below' (Wong 2000 pp.128-129), with a topographic language (Wong 1997 p79) that produces confusion (Wong 2000 pp.128-129). That 'place' appears in very different contexts, under many different names, but not only spiritual, in the guise of many different definitions that confuse philosophers and physicists alike (Weisstein 1999). This 'place' and its reality or unreality has been the source of mystified reflections for a very long time (Eliade 1961 p.130, Cleary 2000 p.391, Powell 1880 in Kieffer p.60, Furth 1999 p.192, Newton 2006b) (see <Extract F9\ Deep confusing questions>).

Some other notions are relevant to this 'place' that I consider a topologic space: deployment as generative, the unfolding 'Secondary' and enfolding 'Primary' defined by deployments after containment (after order 3), and the principle of inversion (see <Extract F13\ San Jiao & inversion>). The most interesting geometrically in that of a 'ball', which is, in mathematics, very different from a sphere or globe? The latter is a surface or double-surface

(inside and outside, similar to the upside and underside of a sheet of paper, whereas the ‘ball’ is a spherical mass without a surface, like the inside space of the sphere-surface (when it is not empty). This is related to enfoldment and boundary, to the imagery of the womb, and to trying to express what a ‘one’ that is not differentiated is. As with all other confuse notions I found in both ancient and modern literature, there many variations, some very fancy.

### ***Mysterious Pass***

- ‘One “return” of a man’s primal *qi* makes his whole body harmonious.’ [...] ‘The paths of such movements up and down from the Gate of the Mysterious Female’ at the generative centers below... [to] the “ball of mud” (*niwan*) of the brain... one visualized... as terrain linked by pathways in a tapestried interior landscape.’ (Furth 1999 p.192)
- ‘Who could understand what the Mysterious Pass is? Few genuine qigong masters understand it.’; [...] ‘... the Mysterious Pass is open. When it ejects out, it is a long tube which will become round gradually.’ (Li Hongzhi 1998)
- ‘After the Mysterious Pass forms a system...’; ‘Nobody could explain clearly why the Buddha sits inside the circle. Let me tell you that this is... the Mysterious Pass... It is called a world.’ (Li Hongzhi 1998)
- ‘Gathering her ministers and advisors together, she told them, “I’m going in search of the mysterious lands beyond the vast oceans far to the south. We’ve always heard rumors of a wondrous rich land beyond turmoil, beyond time. I’m going to find that place.”’ (Edwards 2000 p.42-43)

- EE Bouchon (2004)

My experience projected the notion into physical sensation: it manifested as a ‘core’ location in my body, around the center of the diaphragm, which can twist (rather than just go up and down), and in which I had a sensation that I could ‘follow the direction’ I was going towards even when walking with closed eyes. This worked to surprisingly reliable effect : my walking was very straight (I checked my footstep marks in the beach sand behind me), whereas without this ‘core’ sensation, walking with closed eyes is a rather wobbly affair. This was a physical and ‘local’ experience. It also gave me an extraordinary sensation of being globally supported ‘from inside’ by something ‘beyond me’, without any particular location in space or time. I associated the sensation local to my body with the ‘Pass’ of Chinese inner alchemy, and the global sensation (lifeworld) with the mysterious ‘Place’.

### ***Ball and silk***

- ‘The  $n$ -ball, denoted  $\mathbb{B}^n$ , is the interior of a sphere  $\mathbb{S}^{n-1}$ , and sometimes also called the  $n$ -disk. (Although physicists often use the term “sphere” to mean the solid ball, mathematicians definitely do not!) The equation for the surface area of the  $n$ -dimensional unit hypersphere  $\mathbb{S}^n$  gives the recurrence relation [...] The term “sphere” technically refers to the outer surface of a “bubble”, which is denoted  $\mathbb{S}^2$ . However, in common usage, the word *sphere* is also used to mean the union of a sphere [*curved surface*] and its interior (a “solid sphere”) [note the assimilation of volume to rigid solid even in maths]

where the interior is called a ball.’ (Weisstein 1999)

- ‘the “ball of mud” (*niwan*) of the brain...’ (Furth 1999 p.192)
- During the Han dynasty, there was a handsome man known as the Gardener, who: ‘used to cultivate fragrant herbs of five colours... One day five-coloured moths suddenly appeared and gathered around the plants. Eventually, when [the] silkworms [he had collected] had produced their cocoons, one night a “good woman” appeared at the Gardener’s door, calling herself his wife. She showed him how to collect the silk and they found they had one hundred and twenty cocoons the size

of jars, which took sixty days to wind into a single huge ball of silk floss. When this was done, they disappeared together. Subsequently the local people set up a shrine to them..' (Cleary 2000 p.391)

The following passage, reproduced in a section called '*Raising the Ceiling of the World*' (Kieffer p. 60), is a presentation on 'the mythical beginning with the Seven, ... a legend of the seven stars,... cows, ... or sisters that are met with in the oldest mythologies'. It contains an usually high concentration of nexial and topographic vocabulary (in bold):

- 'The philosopher of Oraibi tells us that when the people ascended by means of the magical tree which constituted the ladder from the lower world to this, they found the firmament – the ceiling of this world – low down upon the earth, the floor of this world. Machito, one of their gods, raised the firmament on his shoulders to where it is now seen. Still the world was dark, as there was no sun, no moon, and no stars. So the people murmured because of the darkness and the cold.

'Machito said, "Bring me seven baskets of cotton bolls", and they brought him seven baskets of cotton bolls; and he taught the seven maidens to weave a magical fabric from the cotton, and when they had finished it he held it aloft, and the breeze carried it away toward the firmament, and in the twinkling of an eye it was transformed into a beautiful full-orbed moon. The same breeze caught the remnants of flocculent cotton, which the maidens had scattered during their work, and carried them aloft, and they were transformed into bright stars.

'But still it was cold, and the people murmured again, and Machito said, "Bring the seven buffalo robes, and they brought him seven buffalo robes, and from the densely matted hair of the robes, he wove another wonderful fabric, which the storm carried away into the sky, and it was transformed into the full-orbed sun. Then Machito appointed times and seasons and ways for the heavenly bodies, and the gods of the firmament have obeyed the injunctions of Machito from the day of their creation to the present. (Powell 1880 in Kieffer p.60)

- 'The resemblance between the pearl developing in the oyster and the foetus... [...] Oysters, since they contain the yin principle only, are favourable to parturition and sometimes precipitate it.... When "gravid with the pearl", the oyster pang is like a woman carrying the foetus in her womb.' (Eliade 1961 p.130)

- 'Plutarch thus expounds: Jupiter he calls fiery heat & ether luno vital air, Aidoneus or Pluto earth & Nestis the fountains of seed & water *in humane bodies*. Isis being therefore the whole globe of the four elements & Osiris only the element of the earth it thence came to pass that the magna Deûm mater was worshipped much more generally then Pluto, all nations having her in great honour. ffor by her they often understand not only this elementary globe but the whole system of all the Planets calling her soul the soul of the world.'(Newton 2006b)

- 'Pink Bubble Meditation technique': (Creative visualization by Shakti Gawain, 1978, which I practiced for a couple of years a long time ago)

'... Imagine something that you would like to manifest. Imagine that is already happened. Now in your mind's eye surround your fantasy with a pink bubble, put you goal inside the bubble... Pink is the colour associated with the heart, and if this colour vibrations surrounds whatever you visualize, it brings to you... The third step is to... imagine it floating off into the universe, still containing your vision.... Now it's free to float around the universe, attracting and gathering energy for it's manifestation.' (text *verbatim*, Earth Star Publishing, 2006, Perth, WA, Australia)

### **Primary-Secondary in the body**

- 'ability to factor numbers into primes since "primeness" is an abstract concept.' (Kak 2000)

- 'first dying' –'not dying a second time' thanks to *asuniti* [conducted breath/ life/ vitality] (Miller 1974 p144-45)

- 'There is another category of pain, however, called chronic pain. As far as we know, this type of pain does not serve any known purpose; it has outlived its usefulness. [...] involving a more mysterious dysfunction in the pain sensing or interpretation centers of the spinal cord and brain. Fibromyalgia and

chronic migraine fall into this category. [...] The author writes about the "Myth of Two Pains" -- physical vs mental -- [...] She notes the 19th-century view that: "pain wasn't legitimate unless it could be pointed to, probed and measured; otherwise it was [...] "all in the head." ' (Jovey 2002)

- 'By the nineteenth century, the first [menstrual "retention"] was "primary amenorrhoea", and the second [menstrual "suppression"] was secondary amenorrhoea.' (King 2004 p.10)
- 'According to psychodynamic theory, conversion symptoms develop to defend against unacceptable impulses. Some write of primary gain, that is to say purpose of keeping an internal conflict or need from being realized. A fairly transparent example would be leg paralysis after an equestrian competitor is thrown from his or her horse. The symptom has a symbolic value that is a representation and partial solution of a deep-seated psychological conflict: to avoid running away like a coward, and yet to avoid being thrown again. According to learning theory, conversion disorder symptoms are a learned maladaptive response to stress. Patients achieve secondary gain by avoiding activities that are particularly offensive to them, thereby gaining support from family and friends, which otherwise may not be offered.' [...] 'Patients often deny emotional difficulty. Unfortunately, la belle indifférence, histrionic personality, and secondary gain are clinical features that appear to have no diagnostic significance. They can easily be absent in patients with conversion disorder; they can be easily be present in patients with traditional neurologic disorder' (Powsner & Dufel 2005)
- 'The second broad cluster, depletion fatigue, assembled afflictions marked by slow, chronic wasting, where the sufferer grew emaciated and debilitated, accumulating a host of secondary symptoms from pallor, indigestion and shortness of breath to hair loss, hot sensations on palms of hands and soles of feet, and palpitations, while also experiencing destabilized psyche marked by disturbed dreams or insomnia, fits of melancholy or anger.' (Furth 1999 p.79)
- 'The etiology of malnutrition may be divided into two categories, primary and secondary. [...] Secondary malnutrition is due to factors interfering with the ingestion, absorption, or utilization of essential nutrients, or to stress factors that increase their requirement, destruction, or secretion.' (Pfeiffer 1975 p.4)

### **Primary-Secondary in abstraction**

(See also Spinoza and Husserl in <Extracts F5\ Gauging thinkers>)

- 'All basic life processes require alternating phases of (1) arousal and effort where energy is consumed and (2) a phase of so-called "relaxation" where the system is actually furiously busy building up energy (cyclic AMP) and supplies( enzymes and messenger molecules) at the genetic- cellular level for the next work cycle. We emphasize this basic two phase dynamic of arousal and relaxation. (Rossi 1996 p.138-9)
- '...the distinction, in a given pathological situation, between the primary symptoms and the secondary symptoms, or, if one translates literally the Chinese terms, between the trunk elements and the branch elements, from which the way they succeeded and engendered mutually can be reconstituted. Thus "illnesses with accumulation" (*jiju bing*) constitutes a rubric in which accumulations are the predominating symptom. But these are also found in the names of syndromes of other nosological entities as secondary symptom, such as in the "State of vacuum and fatigue"... One can yet give the example of *qi* rising back up: in the rubric of cough illnesses, a syndrome is named "cough and *qi* rising back up" but this rising back up of *qi*, here a secondary symptom, is also found in other pathology rubrics... where it becomes the primary symptom of a syndrome. That is why terms such as "accumulation" (*jiju*) of the *yin* and *yang qi* or "inversion of *qi*" express at the same time symptoms and transformations of the pathological process.' (Despeux & Obringer 1997 p.75-76, my translation –text below \*–, see also discussion of *qi*, pp.42-48 and p.83).
- Blood and *qi*, in terms of circulating primary vitalities, and sufferers experiencing these terms of a phenomenology of bodily fullness or emptiness or sensations of heat and cold. Constructions of disease as internal depletion and functional inadequacy were sometimes at war with notions of it as external invasion and alien presence.' (Furth 1999 pp.238)



- 'Niels Bohr commented... "... The analogies with some fundamental features of the quantum theory, exhibited by the laws of psychology [...] Yet it may well be that behind these analogies there lies not only a kinship with regard to the epistemological aspects, but that a more profound relationship is hidden behind the fundamental biological problems which are directly connected to both sides [physical and psychological]."' (Jahn & Dunn 1986 p.767)
- 'A day and a night of regulated breathing can [reverse] twenty years of chronic illness. One exposure to Heaven's yang *qi* and all things grow and bloom. [...] One "return" of a man's primal *qi* makes his whole body harmonious. [...] The paths of such movement up and down from the "Gate of the Mysterious Female" at the generative centers below the navel through the visceral trunk to the "bright hall" (*ming tang*) behind the eye and the "ball of mud" (*niwan*) of the brain followed the pathways of the circulation channel system and its openings, so that one visualized *zang* and *fu* interior landscape [...] 'Yuan Huang's teachings imagines the alchemical body as the functioning nexus of three primary vitalities: Essence (*jing*), *qi* and Psyche (*shen*) – a theorization considered by scholars today as central to the body of internal alchemy. I read Yuan Huang's interpretation as showing internal alchemy as an eclectic strand in medical thought, addressing questions about the boundaries of life and death that medical doctrines based on the cycles of yin yang and the Five Phases ignored. In the Yellow Emperor's body psychic activity was not the subject of any distinct analysis. [...] Yuan Huang's body of inner alchemy was achieved through mastering the complex interdependence of all three. The inner alchemist located himself in relation to the critical boundaries of birth and death in time.' (Furth 1999 pp.192-193).
- 'Take a human being, an animal, bird or reptile. He or she is moving along, doing nothing much in particular, in a territory and life is humdrum. The creature is running, as it were, in bottom gear. The he, she or it comes across a source of stimulus... Beyond the immediate pleasure-seeking comes the phase when reason comes into it, or knowledge. Reason says that one needs a shelter... There is a hierarchy of importance here.' (Shah 1994 p.301)
- 'The preposterous hypothesis we have come to... is that at one time human nature was split in many, an executive part called self, gods, and a follower part called a man.' (Jaynes 2000 p.84)  
 [Author's EE:] 'In my late twenties, ...I had for about a week been studying and autistically pondering some of the problems in this book [...] One afternoon I lay down in intellectual despair on a couch. Suddenly, out of an absolute quiet there came a firm, distinct loud voice from my upper right which said "Include the knower in the known!" It lugged me to my feet absurdly exclaiming, "Hello?" looking for whoever was in the room. The voice had had an exact location. No one was there!...I do not take this nebulous profundity as divinely inspired, but I do think that it is similar to what was heard by those who have in the past claimed such special selection. (op. cit. p.86 – see p.87-93)  
 'In schizophrenia.[...] In some cases, particularly the most serious, the voices are not localized. But usually they are...In some patients there is a tendency to associate the good consoling voices with the upper right, while bad voices come from below and to the left. (op. cit. pp.88,89,90)  
 'If we are correct in assuming that schizophrenic hallucinations are similar to the guidances of gods in antiquity, then there should be some common physiological instigation in both instances. This, I suggest is simply stress. In normal people, we have mentioned, the stress threshold for release of hallucinations is extremely high [...] This is caused, I think, by the buildup in the blood of breakdown products of stress-produced adrenalin which the individual is, for genetical reasons, unable to pass through the kidneys as fast as a normal person' (op. cit. p.93)  
 'If two monkeys are placed in harness, in such a way that one of the monkeys can press a bar at least once every twenty seconds to avoid a periodic shock to both monkeys's feet, within three or four weeks the decision-making monkey will have [executive] ulcers, while the other, equally shocked monkey will not. [...] So Achilles, ... in decision-stress ... The divine voice ends the decision stress. (op. cit. p.94)  
 'The Origin of Auditory Hallucinations – That there is a problem here comes from the very fact of their undoubted existence in the contemporary world, and their inferred existence in the bicameral period. The most plausible hypothesis is that verbal hallucinations were a side-effect of language comprehension which evolved by natural selection as a method of behavioral control. Let us consider a man commanded by himself or his chief to... If he is not conscious, and cannot therefore narratize the

situation and so hold his analog “I” in a spatialized time... how does he do it? [...] A Middle Pleistocene man would forget what he was doing. But lingual man would have language to remind him... If one is facing directly and conscientiously the problem of tracing out the development of human mentality, such suggestions are necessary and important, even though we cannot at the present time think how we can substantiate them. Behavior more closely based on aptic structures (or, in an older terminology, more “instinctive”) needs no temporal priming. But learned activities with no consummatory closure do need to be maintained by something outside of themselves.’ (op. cit. p.135)

### ***Deployment as generative*** \*

- ‘the matrice aspect of the unspeakable Deity, of the genetic Vacuum that comes to expand... its unveiling itself’ (Cazenave 1998 p.96, my translation) [‘...L’aspect matriciel de la D  it   indicible, du N  ant g  n  tique qui en vient    se r  pandre, ...son d  voilement m  me...’]
- ‘“Come, Hidden Mother.” [...] which allows to make a bridge between the All of the Vacuum and the deployed All of divine creation.’ (Cazenave 1998 p.109, my translation) [‘“...Viens, M  re cach  e.” [...] qui permet de faire le pont entre le Tout du N  ant et le Tout d  ploy   de la cr  ation divine.’]
- ‘... the Whole is compacted (recollected), all in included, and the before-the-world appears; alchemists call it the Hole of the Obscure Pass and assimilate it to the obscure Female...”The Hole-One that is in the body is called the obscure Female... the knotting of the embryo is there... This Hole has no sides, nor any interior and exterior... It must be sought in the body and nowhere else.” This is why a commentator of Lao zi has written that all concerning alchemy is the “great affair” of the obscure Female.’ (Robinet, in Cazenave 1998 p.149-150, my translation) [‘... la Totalit   est rammass  e, tout est inclus, et l’avant monde fait irruption; les alchimistes l’appellent la Trou  e de la Passe Obscure et l’assimilent    la Femelle obscure... “La Trou  e une qui est dans le corps s’appelle la Femme obscure... la nouaison de l’embryon s’y trouve... Cette trou  e n’a pas de cot  , non plus qu’un int  rieur et un ext  rieur. ... Elle doit   tre recherch  e dans le corps et nulle part ailleurs.”... C’est pourquoi un commentateur de Lao zi a pu   crire que tout ce qui concerne l’alchimie est “la grande affaire” de la Femelle obscure.’]
- ‘... the “obscure Female”, which is the moment-place where... the Spring (of the world) moves...’ (Robinet, in Cazenave 1998 p.157, my translation) [‘... la “Femelle obscure”, qui est le moment-lieu o  ... le Ressort (du monde) bouge...’]
- [‘*Yin* and *yang* are two phases of a single *qi* that give rhythm to life and the circulation in the body. Their deployment in a spatio-temporal closed schema is operated according to cyclical and continuous motion.’ (Despeux & Obringer 1997 pp.27, my translation) [‘*Yin* et *yang* sont deux phases d’un seul et m  me *qi* rythmant la vie et la circulation dans le corps. Leur d  ploiement dans un schema spatio-temporel clos s’effectue selon un mouvement cyclique continu.’]
- ‘the auto-unveiling of the divine, its motion, its deployment’ (Cazenave 1998 p.94, my translation) [‘...l’auto-d  voilement du divin, son mouvement, son d  ploiement...’]
- ‘The ultimate Height is, he says, the obscure Female, “the burgeoning that deploys and transforms (the world) and generates the Tao continually.’ (Robinet, in Cazenave 1998 p.147, my translation– see also reference in note p.147) [‘Le Fa  te supr  me est, dit-il, la Femelle obscure, “le bourgeonnement qui d  ploie et transforme (le monde) et engendre le Tao continuellement.”]
- ‘... “Gate guarded by the Jade Maiden” that permits to “enter into the mountain”... operating a return by going backwards, i.e. going against the flow of time and the order of evolution and deployment of the world.’ (Robinet, in Cazenave 1998 p.155, my translation) [‘... “Porte gard  e par la Fille de Jade” qui permet “d’entrer dans la montagne”... op  rer un retour en marchant “   l’envers”, c’est-  -dire    contre-courant par rapport au temps et    l’ordre d’  volution et de d  ploiement du monde.’]

\* ‘...la distinction dans une situation pathologique donn  e entre les sympt  mes principaux et les sympt  mes secondaires, ou, si l’on traduit litt  ralement les termes chinois, entre les   l  ments tronc et

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\* These are my translations.

les éléments branches, à partir desquels on peut reconstituer la façon dont ils se sont succédés et engendrés mutuellement. Ainsi les “maladies avec accumulation” (*jiju bing*) constituent une rubrique dans laquelle les accumulations sont le symptôme prédominant. Mais ces dernières se retrouvent dans les intitulés de syndromes d’autres entités nosologiques comme symptôme secondaire, tel que dans les “Etats de vide et fatigue”... On peut encore donner l’exemple de la remontée de *qi*: dans la rubrique des maladies de la toux, un syndrome est intitulé “toux et remontée du *qi*” mais cette remontée du *qi*, ici symptôme secondaire, se retrouve dans d’autres rubriques pathologiques, ... où elle devient le symptôme principal d’un syndrome. [...] C’est pourquoi des termes tels que “accumulation” (*jiju*) des *qi yin* et *yang* ou “inversion du *qi*” expriment à la fois des symptômes et des transformations du processus pathologique.’ (Despeux & Obringer 1997 p.75-76)

## Text extracts F13 – San Jiao (meridian) and Principle of inversion

### ***Examples of inversions in health***

There are many examples of inversions in the literature, but they are not usually recognised because they appear, in the human domain, as small interpretive disagreements, and in the scientific domain, as double negations that make logical positives. For example:

- ‘Dilman’s theory in essence, is that aging is caused by a progressive loss of sensitivity of the hypothalamus and related structures in the brain to negative feedback inhibition to hormones and neurotransmitters, and similar loss of sensitivity to peripheral hormone receptors. This loss of sensitivity [metabolic] not only enables us to grow and develop but is the cause of post-maturational diseases aging and death. [...] Dr Fabris proposed that there are two levels of interaction between the neuroendocrine and the immune systems. The first level is based on the interactions between the neuroendocrine system and the thymus gland [...] The second level of interaction is at the periphery, between neuroendocrine signals and the cell-signalling substances which are secreted by immune cells during specific reactions to various antigens.’ (Ward 2005)
- ‘cancer cachexia is characterised by higher rate of protein turnover and breakdown, in part due to failure of fat utilisation to adequately ‘spare protein’ in energy metabolism. (Helman 2003 p.3)
- ‘It seems unclear why he [Selye 1956] called these human diseases – diseases of adaptation, rather than calling them diseases of mal-or failed adaptation. We know today that these varied diseases... are also characterized by disturbances of the regulation of complex physical systems (Weiner 1977). Because of their hetero-geneity stressful experiences do contribute, the person for diverse reasons has failed to cope with them.’ (Weiner 1992 p.15)
- ‘Many of the symptoms of CFS are consistent with a host response to pathogenic challenge. We are focussing on proteolytic response, or catabolism.’ (Dunstan 2001 p.22-23)

The emaciation is, in this case, often invisible for the objective observer, hidden by fat increase:

- ‘clinicians treating cachexia must measure not just weight, but also muscle mass.’ (Helman 2003 p.3)

A most flagrant example of ‘inversion’ is the common understanding of Selye’s notion of ‘disease of adaptation’, which he sees as a general ‘syndrome of being sick’ physically (Selye 1976 p.17). Weiner, for example, interprets this as ‘human diseases – ...of mal-or failed adaptation’ in which ‘stressful experiences do contribute, [and] the person for diverse reasons has failed to cope with them.’ (Weiner 1992 p.15)

The ‘alarm reaction’ (Selye 1976 p.50), similar to ‘garrison *qi*’, involves an alert or ‘attentive brain’ (Wickelgren 1997), and is a straining that leaves ‘damage’ (Selye 1976 pp.1, 30) in its wake, and an sense of *ill* ease. The notion of adaptive failure contrarily implies that adaptation *eases* the strain and is thus similar to ‘nourishing *qi*’, involving mental ‘attention’ (Fehmi & Fritz 1980). The difference is far from small: it involves

fundamental shifts in the underlying (topologic) model-imaging, from the general to the specific, from the physical to the human and mental, in the development of a generic origination into multi-factor causal concepts, in the type of the descriptive vocabulary, and in human devaluation in certain conditions. Therefrom arises one of the most confusing sets of conflicting explanations and treatments relative to what I call ‘syndromes of instability’, which are still unresolved since medieval and most ancient history.

### ***The problem of the San Jiao meridian in acupuncture***

‘The classic problem of the sanjiao meridian’(Zito & Barlow p.86) is linked to notions of unfolding, penetration, dispersion, skin, boundaries and openings, texture, etc. (Zito & Barlow 1994 chapter 4: *Silk and skin: significant boundaries*, p.103-130)

- ‘*Sanjiao*, “triple burner”, is one of the most difficult to understand notions in traditional Chinese medicine, not only because it has no equivalent in Western medicines, but also because in China itself, it has not been clearly defined. The term itself of *jiao* poses interpretation problems, since the primary meaning arising from dictionary definitions and from its usage in the most ancient texts is that of burning, desiccating, whereas in the medical context, it seems, originally, more associated with circulation of fluids.’ (Despeux & Obringer 1997 pp.35) [French text below 1]
- ‘...the question of the localisation of the *sanjiao* animated medical debates for many centuries.’ (Despeux & Obringer 1997 pp.39) [‘...la question de la localisation du *sanjiao* anima les débats mécaux pendant de nombreux siècles.’]

Discussions in Despeux & Obringer (1997) relevant to topology, the syndromes of instability, and the archaic East framework, include: *sanjiao* as somatic support (op.cit. p. 36); cycles of time, increasing and decreasing (p. 53); correspondence of left, east, spring, redness (p. 73); illnesses due to worms and to wind, penetrating, and notions of cause and origin, and triggering factors (p. 73); primary and secondary symptoms, or trunk and branching, succession and engendering (p. 75); inversion of *qi* (p. 77); time, origins and evolution; and space, relations of symptoms and transformations; establishing rules of constancy and variability (p. 77); rib pain on the right (p.91, 92, 100, 104, 216, 245)

- ‘This “organ” seems to have first been conceived, in the most ancient times, as somatic support to a particular function, then to have been divided into three levels and three specific functions. As can be seen in the texts mentioned from the *Shiji* as well as in two passages of the *Suwen* and the *Lingshu*, the triple burner, although triple, is nevertheless located only in the lower body where it is associated with the bladder... In the *Suwen*, the single burner (*jiao*) is more often mentioned than the triple burner.’ (Despeux & Obringer 1997 pp.36 – see full discussion, pp.35-42 ) [French text below 2]

### ***Principle of Inversion***

- ‘[...] “... the obscure Female is the mechanism that presides to the opening and closing of the world”... It is again the principle of inversion... that is applied since the obscure Female is placed on the physical plane but celestial (she is below, but contains the celestial Fire that elevates her). In other words, the mental... is of volatile nature, and has to be fixed, made to descend, give it the stability of the Earth. The body, on the contrary, is... of a heavy (massive) nature like the Earth, and must be elevated.’ (Robinet, in Cazenave 1998 p.161) [French text below 3]

- 'inversion of *qi*' and '*qi* rising back up' (Despeux & Obringer 1997 p.75-77 – See also discussion of *qi*, pp.42-48, and p. 83, 99); of *niqi* (symptom) p.87 and *qini* (inversion of *qi*) p.94, and of *sanjiao* as somatic support p. 36.)
- 'Health is guaranteed inside the body by essentially two sorts of *qi*: the nourishing *qi* (*rong qi*) which was also called, in the most ancient texts, garrison *qi* (*yingqi*) and the defensive *qi*, forming barrier and defending the body against intrusion...' (Despeux & Obringer 1997 p.83) [French text below 4]
- 'That is why terms such as "accumulation" (*jiju*) of the *yin* and *yang qi* or "inversion of *qi*" express at the same time symptoms and transformations of the pathological process.' (Despeux & Obringer 1997 p.75-76, see also discussion of *qi*, pp.42-48,83). [French text below 5]

### **Semantic inversion**

- 'To nourish the planet while respecting the environment requires neither "hybrides", nor GM, nor patent, nor any other technique of sterilisation of plants or animals. [...] For the characteristic of this varietal type, which differentiates it from all others, is not to augment the yield thanks to some "hybridness" as has been proclaimed for decades, but to diminish that of the next generation, as is not told. [...] In waiting for the *Terminator* varieties, it is until now the only varietal type that autodestructs in the field of the farmer. [...] Unfortunately, there seems to be a change in the policies of the UPOV. It turns its back on its foundation principles to compete against the patent right founded on opposite principles. [...] Let us observe once more the semantic inversion that consists in qualifying as privilege the foundation practice of agriculture, to sow the grain harvested. [...] And the right of patent has been progressively turned around, against the intent of its liberal promoters.' (Berlan 2001) [French text below 6]
- '... this intelligence-*Esprit* (mind-spirit) on the feminine mode since this notion has become, today, so alien to us. [...] the *Esprit*, in Greek,... is named in the neutral (*pneuma*) or in the masculine (*nous*) – which cover fairly closely the same notions as breath and penetrating intelligence –, whereas Wisdom (*Sophia*) is in the feminine. Therefrom comes the inversion of genres that happens in the hellenism of the Roman period, as soon as the Jewish authors try to reflect in Greek on the biblical texts, ... and often syncretise them (the genres).' (Cazenave 1998 p.111-112) [French text below 7]
- 'Plato has also postulated a tripartition of the soul, which like any trinitary form is characteristic of the mental structure and may be seen as a direct connection to the tripartition of time effected by Parmenides, who was the first to posit the three-phase nature of time. This gave rise to the problematic aspect of the future. [...] The dimension of the future necessarily lends a forward thrust to spatiality, giving both space and time the semblance of direction. Let us take note of this result: our conceptual time is not a psychic but a mental phenomenon which proceeded from the psychic: it is the line that severs the circle and thus forms the basic dimension of a four dimensional space. By virtue of the fact that it was itself divided, time became measurable; but it thereby forfeited its original character. In the course of philosophical speculation it was to a great extent spatialized. This transposition or reversal is a typical *speculatio rationis*: the divider, instead of being treated as such, is itself divided. Commensurately with this transposition there is necessarily a devaluation of the concept of time which engenders a manifest debasement of time, particularly in the wake of the discovery of perspective and the complete spatilization of the world.' (Gebser 1985 p.178)

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*Above are my translations of the following French text extracts:*

[1] [*Sanjiao*, "triple réchauffeur", est une des notions de la médecine traditionnelle chinoise les plus difficiles à saisir non seulement parce qu'elle n'a aucun équivalent dans les médecines occidentales, mais aussi parce qu'en Chine même, elle n'a pas été clairement définie. Le terme même de *jiao* pose des problèmes d'interprétation, car le sens premier qui ressort des définitions des dictionnaires et de son usage dans les plus anciens textes est celui de brûler, dessécher, alors que dans le contexte médical il semble plutôt à l'origine associé à la circulation des liquides.] (Despeux & Obringer 1997 pp.35)

[2] [‘Cet “organe” semble d’abord avoir été conçu aux époques les plus anciennes comme un support somatique à une fonction particulière, puis avoir été divisé ensuite en trois niveaux et trois fonctions spécifiques. En effet, dans le texte sus mentionné du *Shiji* comme dans deux passages du *Suwen* et du *Lingshu*, le triple réchauffeur, s’il est triple, est néanmoins situé uniquement dans le bas du corps où il est associé à la vessie... Dans le *Suwen*, le réchauffeur seul (*jiao*) est plus souvent mentionné que le triple réchauffeur.’ ] (Despeux & Obringer 1997 pp.36 )

[3] [“[...]” ... la Femelle obscure est le mécanisme qui préside à l’ouverture et à la fermeture du monde”.... C’est encore le principe de l’inversion... qui est appliqué puisque la Femelle obscure est placée sur le pan physique mais céleste (elle est en bas, mais contient le Feu céleste qui l’élève). En d’autres termes, le mental... est de nature volatile, et il faut donc le fixer, le faire descendre, lui donner la stabilité de la Terre; le corps, en revanche, est... de nature pesante, comme la Terre, et doit s’élever.’ ] (Robinet, in Cazenave 1998 p.161)

[4] [‘La sante est garantie a l’interieur du corps par essentiellement deux sortes de qi: le qi nourricier (*rong qi*) qui s’appelait aussi dans les plus anciens textes qi de garnison (*yingqi*) et le qi defensif (*weiqi*) formant barriere et defendant le corps contre l’intrusion...’ ] (Despeux & Obringer 1997 p.83)

[5] [‘C’est pourquoi des termes tels que “accumulation” (*jiju*) des *qi yin* et *yang* ou “inversion du *qi*” expriment à la fois des symptômes et des transformations du processus pathologique.’ ] (Despeux & Obringer 1997 p.75-76)

[6] [‘Nourrir la planète en respectant l’environnement n’exige ni «hybrides», ni OGM, ni brevet, ni aucune autre technique de stérilisation des plantes ou des animaux.’ (Berlan 2001)

‘Car la caractéristique de ce type variétal, qui le différencie de tous les autres, n’est pas d’augmenter le rendement grâce à une supposée «hybridité» comme on le proclame depuis des décennies, mais de diminuer celui de la génération suivante comme on le fait. En attendant les variétés *Terminator*, c’est jusqu’ici le seul type variétal qui s’autodétruit dans le champ du paysan!’ [‘Malheureusement, il semble qu’un changement s’opère dans la politique de l’UPOV. L’UPOV tourne le dos à ses principes fondateurs pour faire concurrence au droit de brevet fondé sur des principes opposés.’ ] [‘Observons une fois encore l’inversion sémantique consistant à qualifier de privilège la pratique fondatrice de l’agriculture, semer le grain récolté.’ ] [‘Et le droit de brevet s’est donc progressivement retourné contre les intentions de ses promoteurs libéraux.’]

[7] [‘...cet Esprit-Intelligence sur le mode féminin tant cette notion, aujourd’hui, nous est devenue étrangère. [...] L’Esprit en grec,... se dit selon le neutre (*pneuma*) ou selon le masculin (*nous*) – qui recourent d’assez près les mêmes notions de souffle et d’intelligence pénétrante –, cependant que la Sagesse (*Sophia*) est du genre féminin. D’où l’inversion des genres qui se produit dans l’hellenisme de l’époque romaine, dès lors que les auteurs juifs tentent de réfléchir en grec sur les textes bibliques, ... et souvent les syncretisent.’ ] Cazenave 1998 p.111-112)

## Extracts F14 – ‘Mysterious Female’

(See also <Extract F12\ Mysterious pass or place>)

Spiritual practices of activation such as ‘activation of the Goddess’ (Despeux & Kohn 2003), of the Kundalini (Muktananda 2000, Edwards 2000), or of life energy (Laughlin et al. 1990), can give rise to physical, psychic or psycho-physical experiences. The activation may be involuntary (eg Cleary 2000 p.391, Brach in Cazenave 1998 pp.41-47), or consciously sought, as for the Mysterious Female (Robinet in Cazenave 1998 pp.137-165, Furth 1999, pp.81,192, Despeux & Kohn 2003 p.90, Cahill 1992).

### ***Experiential accounts: ‘Mysterious Female’ from a male viewpoint***

For experiential accounts of ‘The woman’, consult for example, Muktananda (2000 p. 11, 107-109, 117), Edwards (2000), Peat (2003, on Wolfgang Pauli) and other examples (below) This also appears related to ‘the Light’ (Muktananda 2000, Edwards 2000), which is also found in Near Death Experiences (not necessarily on the hospital table – see for example the “Neuro-vegetative-collapse” of Tomatis (1991 pp.194, 195, 197), which can be compared to the ‘falling on his face’ of biblical prophets. Most interesting is the general shape of the experiential stories told. They often involve either ‘rising’ (or ‘ascending’) or a ‘falling deep’, the story lines familiar in archaic texts that involve East, West, South, North, or an unravelling of space and time (see <Extracts F12\ Mysterious pass or place>), with a topographic language strikingly similar to that found in ‘advanced’ knowledges, whether spiritual or scientific (compare for example Muktananda 2000, Edwards 2000, and Tomatis 1991).

One particular example is notable in this respect. The poem by pre-socratic philosopher Parmenides (Kingsley 1999 pp.53-54) and its explanation by Parmenides himself, have given rise to many exegeses, but also left, according to Kirk & Raven (1963 p.278-282) a little known explanation, of the ‘advanced’ kind – the ‘*Way of Seeming*’. My reading of it suggests a likeness to trying to explain general relativity to a special-relativist without images.

- ‘He would absorb seminal essence from the Mysterious Female, following the *Daode jing* dictum that the “valley spirit that does not die” (ch.6) and thereby preserving his life and nourishing his *qi*.’ (Despeux & Kohn 2003 p.90)
- ‘Mysterious Gateway’; ‘One “return” of a man’s primal *qi* makes his whole body harmonious.’; ‘the paths of movements up and down from the Gate of the Mysterious Female’ at the generative centers below... “ball of mud” (*niwan*) of the brain... one visualized... as terrain linked by pathways in a tapestried interior landscape.’, Furth 1999 p.192)



The Mysterious Female is a good thing, but she is ‘not self’ and it is unclear ‘whence from’ she comes:

- ‘Meditation at the red stage... is meditation in the gross body.’ (Muktananda 2000 p.103)  
 ‘Then a ruinous kind of meditation came to me - a sensual meditation, a meditation of desire. How disgusting it was! I saw the red light, but its color changed. It was my size and was shining like the soft ways of the morning light in the east. All the love and intoxication I had felt in meditation left me... Instead, in their place came a powerful sexual desire...My whole body boiled with lust, and I cannot describe the agony of my sexual organ. I tried to explain it to myself in some way but couldn't... When I shut my eyes, I saw, right in front of me, a beautiful naked girl inside the red light. Even though I didn't want to see her, she appeared. Full fear and remorse, I opened my eyes. I still saw the divine red light. Within it, Jagadamba, the naked girl, still stood ... It was all being forced on me against my will... I was overcome with remorse and could not meditate anymore.’ (Muktananda 2000 p.107)  
 ‘Afternoon came, and I meditated a little, but the same naked woman appeared. [...] As soon as I sat down, my meditation would start with full force... Almost immediately I was deep in *samadhi* and then suddenly full of sexual desire. The naked woman pursued me and stood before me... God knows where she came from; no one had invited her. She did not ask anything from me. She simply ruined my meditation, disturbed my sex organ....’ (Muktananda 2000 p.108-9)  
 [...] ‘This time there was no sexual desire, but it seemed that I was to be saved from one danger only to meet another... These phases, moods, and conditions were all the divine *kriyas* of Siddha Yoga, but because I didn't know this I was confused.’ (Muktananda 2000 p.111)  
 ‘She was, in fact, Mahadevi, the great goddess Kundalini... The next day, Mother Kundalini stood in the red aura again, but this time, I could see Her supremely divine beauty.[...] Now this Shakti became my Guru.... I had taken Her for a mortal, an ordinary woman of the world.’ (Muktananda 2000 p.117)
- [Visions of] ‘the Lady of Light’ (Edwards 2000 p.9-15, 19)  
 ‘Part One: The Journey – As I sank into meditation I found myself descending through space and time, as if from high above the earth, to an island nation of old in a northern sea. [...] A fiery independent young Queen ruled this country. [...] She paced around the royal castle and roamed the shores of her great nation, unable to spend the restlessness that agitated her. [...] Gathering her ministers and advisors together, she told them, “I’m going in search of the mysterious lands beyond the vast oceans far to the south. We’ve always heard rumors of a wondrous rich land beyond turmoil, beyond time. I’m going to find that place.”’ (Edwards 2000 p.42-43)  
 ‘I believe that whatever images, insights, thoughts or other expressions of the truth that come into my mind, heart, or body belong only to the Divine and not to the “me” or the “mind/body” with which I am ordinarily identified.’ (Edwards 2000 p.42)
- ‘One night a “good woman” appeared at the Gardener’s door, calling herself his wife. She showed him [...] when this was done, they disappeared together. Subsequently the local people set up a shrine to them..’ (Cleary 2000 p.391, tale of the gardener)

### ***Mystery of Female nature: health-sanity of a woman’s lifeworld***

‘The Female’, as something mysterious, can also be related to prehistoric cultures, still not well known or understood. In archaic remnants of Neolithic myths, the colours most often associated with ‘The Female’ are yellow and red, with some fancy medieval interpretations (for example Wong 2000 pp.128). I have taken these colours to be global properties of a generic ‘female framework’ for understanding living, ‘The East’ (see <Ancient perspectivalism, the Earth and The East> and <Extract F11\ Red>, in particular for the process of ‘beheading the red dragon’). Other colours are also mentioned in a number of ancient texts and in particular Chinese alchemical writings, especially silver (Furth 1999

p.111) and green, which also corresponds to the gall bladder (Despeux & Obringer 1997, p.117). These could possibly be studied in relation to medieval observations of illnesses of girls at puberty, 'green sickness' or 'chlorosis' (King 2004), the ashen complexion of a bloodless face, to oils and ointments used in archaic healing practices and widely used in contemporary nutritional therapies for inflammatory conditions, to the findings of Budwig (1971, 1972, and 1992) and Bouic (Bouic et al. 1996 and 1999) relative to the immune system, to green digestive secretions and the fluorescent protein of medical biochemistry. 'Chlorosis' is also a disease of plants involving pigmentation. The mystery of the woman's physical nature is a problem for women's health (Furth 1999, see also Despeux & Obringer 1997). For humanity also: it can affect both behaviour and lifeworld, and cause 'nexial resonance' (see endnote <C9>). In an extreme form, such illnesses cause psychic activation.

- 'Finally, the most dangerous, life-threatening forms of depletion fatigue – "bone steaming" – required "separate prescriptions". To today's readers, such advanced fatigue, eventually penetrating to bones, sounds like the tubercular "consumption" of early modern European medicine in its patterning of physical decline, respiratory distress, emotional volatility and sexual excitability. The sufferer experiences shortness of breath, loss of appetite, fierce sweats, cold extremities, dreams of intercourse with ghosts, ...coughing and pain in the side...' (Furth 1999 p.81)
- 'a woman sitting on a scarlet beast... in her hand a golden cup full of abominations' *REV. 17:3-5*
- 'and on her forehead a name... mystery... the great...' *REV 17:5*
- 'I will tell you the mystery of the woman and the beast that carries her... her plagues' *REV. 17:7*

## Extracts F15 – Virtual reality and space

The following text extracts constitute a sampling of our collective understanding of how we ‘create reality’ in the mind subjectively or individually, and reach a collective or inter-subjective consensus on a reality that can be considered objective or common to the senses of all humans, and physical. In other words, these realities are of three kinds.

(1) Subjective, individual realities are mediated by the mind and brain-interpreted perception or ‘extra-sensory perception’ (ESP, psychic or paranormal). I call this reality ‘sensate’ because it is bound with emotion and the pleasures or pains of sensations. This reality is culturally bound and takes forms drawn from one’s culture (Stace 1960, 2001), or from ‘structures of consciousness’ that reenact in each person’s mental development the collective evolution of human culture (Wilber 1977, Gebser 1985).

(2) The objective reality, commonly accepted is spatial, physical, material, and the basis for scientific realism or philosophical physicalism, and which is sensory (5 senses in Western culture).

(3) There is also non-normal reality that is undifferentiated, often called ‘One’, and is related to a state of not-self, or is a ‘place’ impossible to name (see <Extracts F12\ Mysterious pass or place>). It is often considered spiritual, but can also be a ‘direct’ reality, directly accessed by the mind without a self (Buddhist philosophy) or intellectual discrimination (Husserl – see Valle & Halling 1989), or ‘actual’, related to physical sensations that are internal to the body (eg in Qigong or Tai Chi), because not ‘sensory’ *per se*. There is cultural consensus on its existence, but it is understood as unstable, not permanent, accessible only to special people, or only after special practice. Philosophers also sometimes associate it with animal cognition, and Tulku (1976) describes it as ‘natural awareness’. Explanations concerning this reality are always confusing because they use the very concepts and experiences that this reality does not involve (eg self, time and space, or systems – see for example Macy 1989).

Subjective and objective reality have an antecedent in primitive realities that did not differentiate the individual and the collective, body from mind, dream from waking. Krippner & Sichelman (2000) notes that shamanic realities ‘have consensual validation and waking life consequences’, Jaynes (1976) describes the archaic ‘bicameral’ consciousness (hearing ‘the gods’), Devereux (1992) describes the landscapes of the aboriginal DreamTime. It is related to myths and Gebser’s name for it, ‘mythical consciousness’, has been adopted in transpersonal psychology. These primitive realities are construed as having been consensual, collective, and an origin of the modern individuated self-consciousness (having an individual ‘self’), a notion that was expressed already in ancient philosophies of

India. Most authors agree that the objective, spatial, physical, material reality– ‘space’ – is perceptual, sensory, and is modelled according to visual and auditory parameters (eg Craig Nersessian & Catrambone 2002):

- ‘There is a vast cognitive science literature on mental imagery that provides evidence that humans can perform simulative imaginative combinations and transformations that mimic perceptual spatial transformation.... These simulations are hypothesized to take place using internalized constraints assimilated during perception.’ (Nersessian 2002.p.139)

The visual is reflected in the ‘advanced’ knowledges of both science and core tradition (visual imaging technologies and visual symbols). The auditory is reflected in terms such as stochastic resonance, the ‘idea of resonance’ (Le Blanc 1985, Gebser 1985 p.203-205) in ancient cultures, and nexialist thinking, but also in ‘The Word’ in religious paradigms. I could find no literature relating *both* visual and auditory to *both* the fundamental or primary parameters of explanation and experience – N2d-duality and N3p-polarity (or binary nodes and modal frameworks) –: only one is usually addressed, duality being related to time, and polarity to spaces. Only one of the two (duality or polarity) is habitually taken as the basis for a new paradigm of cognition (eg CNRS 2006, ARCo 2006, MathPages: ‘the dual of subjective experience’).

The connection is rarely made between the scientific and human representations and the prosaic reality of daily life that includes the constraints on the body-brain, felt through the thinker’s health, level of brain-mind activity and of psycho-social stress, and which results in the limitation of ‘apprehending’ to sensory perception. For example, a sensation of swelling in the head or of high ‘firing’ activity in the brain, can ‘prime’ polar notions of ‘reality’. Yet it seems to me that few make the connection between general ‘space’ (the objective, physical, material, and perceptual) as an *explanation* and sensory perception as an *experience* of daily life physicality. The idea of constraint remains intellectual:

- ‘To explain how model-based reasoning could be generative of conceptual change in science requires a fundamental revision of the understandings of concepts, conceptual structures... A basic ingredient of the revision is to view the representation of a concept as providing sets of constraints for generating members of classes of models. Concept formation and change is then a process of generating new, and modifying existing, constraints.’ (Nersessian 2002 p.143) [...] ‘As employed in model-based reasoning, I propose that analogies serve as sources of constraints for constructing models.’ (op. cit. p.145).

Consequently, the daily life ‘space’ that we ‘perceive’ is usually simply taken for granted, in sciences, and is considered a ‘lower’ reality, in human fields, compared to mental and human spaces, without explanation for this devaluation. I could not find a description of the ‘origin’ of the 6-directional or 3-dimensional ‘volume’ reality (eg the ‘body’) that would not refer back to either a FlatLand space plane, in physics, or to the ‘4 directions of the Earth’ and to tradition, in humanities. Yet these dimensions are directly related to definitions of inside and outside of the body of a skin-encapsulated (Watts undated) ‘body’ system, closed or open,

of intervals (Watts undated) and to direction or orientation, with activity in between.

These are the basis for both Western biomedicine and Eastern-inspired healing practices. To understand the origin of these 4 flat directions was one of my accessory studies (lasting two years), which involved a particular way of tracing etymology. Is it a coincidence that our normal perceptual space is a conventional euclidean space, a 'flatland'? (Todd et al. 2001, 1999). The distinction of inside-outside is also a major notion in topology (eg double-sided surfaces):

- 'Outside and inside are the two different values of a measure called parity', and which depends on the 'number of boundaries crossed' [even or odd numbers], thus 'changing the connectedness, changing the parity'. 'By fixing the starting-parity as *outside*, you can easily, by "evens-and-odds", tell "where you're at".' (Britton 2006)
- 'A simple trick illustrates topology: taking off a vest without taking off a coat, since (topological) the vest is outside the coat -- in the sense that a paper lying on the bottom of a wastebasket is really outside the basket, not in it, since being in would require removal of a *boundary*. One puts an arm through one vesthole; pulls the coat through this vesthole until it is hanging on the other arm; then pulls the through that other vesthole, where it is obviously "outside".' (Britton 2006)

It is also is the basis for the idea of the body as a machine, vehicle, or container for the human mind, its instrumental brain, the senses of its head, and its constructed, or framed (Rosenberg quoted in Furth 1999 p.13) realities. It is the mind's memory that is blamed for incomplete healing and scarring that remain despite the cells of the body being totally renewed constantly (eg psychoneuroimmunology, Chopra 1990), and which Williamson & Pearse (1980) and many others consider the ultimate source of health.

I have come to consider the spatial, systemic, and memory-bound reality of the 'physical / material body' as a nexial-topologic projection that is bound to operating the body by 'brain central control' and sensory-based feedbacks. This is involved in the loss of internal sensations that is correlated with nexial activation of 'effort' (eg stress, survival, work). Both these represent the loss of the 'ease' of 'proto-health'.

This loss of ease is a way of formulating constraint, and governs the models of 'reality' we create:

- 'Physical activity and conceptual thought have come together primarily in studies of gesture and language. [...] One relevant finding is that physical activity can prime sensibility judgements. [...] physical activity can actually help generate perceptual simulations. [...] Moreover, we argue that for physical activity to be useful it need not explicitly mimic events or situations under consideration. [...] A convergent force image schema might, for example, be elicited by any sort of compressive activity.' (Craig, Nersessian, & Catrambone, 2002, pp.181-4)

For example, a quasi-permanent sensation of pressure in the head or of high-'firing' activity in the brain can rule a nexialist modelling based on polarised activity. The following text extracts aim to show that the collective consensus of physical-material reality is rarely challenged.

- 'Plato has also postulated a tripartition of the soul, which like any trinary form is characteristic of the mental structure and may be seen as a direct connection to the tripartition of time effected by

Parmenides, who was the first to posit the three-phase nature of time. This gave rise to the problematic aspect of the future. [...] The dimension of the future necessarily lends a forward thrust to spatiality, giving both space and time the semblance of direction. Let us take note of this result: our conceptual time is not a psychic but a mental phenomenon which proceeded from the psychic: it is the line that severs the circle and thus forms the basic dimension of a four dimensional space.' (Gebser 1985 p.178)

- 'cognized environment – an internally simulated world... produced by a field of neural entrainments that constantly in flux but exhibits recurrent patterns ... in a dialectic arising between ... intentional processes and the sensorium, ... essentially a symbolic process.' (Laughlin 1990 p.334-335)

- 'Society not only controls much of the conditioning of neural entrainments, but is also able to control the cognized environments and behaviors of group members by manipulating objects as symbols. [...] Cosmological understanding is depicted in symbolic dramas that in turn lead to individual experiences, which are then interpreted within the framework of the cosmology that first produced the experience-thus completing a "cycle of meaning" .' (Laughlin et al 1990 pp.335)

- 'There is compelling evidence from parapsychological research that at least some of these reports have consensual validation and waking life consequences. Shamanic models of "reality" (which reflect shamanic philosophies) also have been ignored in mainstream academic circles. They provide anecdotal evidence, congruent with parapsychological data, and need to be reconsidered by the dominant Western academies because these models encompass anomalous dreams, and because they furnish provocative data. [...] Both Tibetan Buddhist philosophy and Western social constructionism describe how the "individual self" is socially constructed. These "selves" are manifestations of the "filtering" process described by Bergson, but during dreams the "filters" often collapse and humans are opened not only to the subtle signals described by Wolf but to new conceptions of being such as the "wholeness of the events of our lives. [...] Perhaps the attempt to distinguish "dream reality" from "waking reality" is part of a larger program, one that – in the West – typically distinguishes object from subject, science from myth, intellect from body, reason from intuition, modernity from postmodernity, the normal from the paranormal, humans from nature, men from women, monotheism from paganism, technology from "spirit" --basically, the established order from the "other." [...] that can only be treated by Westerners safely as "object" lest they slide through the "filters" that Westerners have erected to protect their "reality." ' (Krippner & Sichelman 2000)

- 'The mind became identified with the simulation and made it perfectly real. [...] Simulation [of flight] can readily become experiential reality. [...] With my interest in altered states of consciousness, I find the possibilities of modelling and communicating the nature of various altered states through virtual reality simulations quite exciting. [...] We each live "inside" a world simulation machine. We almost always forget that our "perception" is a simulation, not reality itself, and we almost always forget that we have anything to do with the particulars of how the simulation works . I personally find .it exciting that this is just the kind of model of consciousness I proposed in my systems approach for understanding altered states (Tart, 1975), and the technology of virtual reality is an excellent demonstration of that approach. Let me give you an example of the operation of our personal world simulators, our virtual reality creation mechanisms . In the mid-1960 ' s, a friend, Robert Monroe, and I invented a device for creating a small "psychedelic" light show in people's own living rooms . We put about sixteen Christmas tree light bulbs in the base of a round container. Each bulb was the kind with a thermal breaker built into it, so it blinked on and off, and each colored bulb had a slightly different blink rate . If you looked directly at the bulbs, you saw an uninteresting bunch of blinking bulbs. We then put a metal plate over the bulbs with a bunch of oddly shaped holes in it, so the bulbs would cast little colored shadows . Then we mounted another plate with oddly shaped holes in it over the first one, and had a motor rotate this second plate very slowly, so the light was coming through combinations of openings that were slowly changing the combined shape. The lights and shadows were then projected on to the inside of a translucent hemisphere . Now you turned on the "Lori Lite," as we called it, and played some music. I cannot recall how many arguments I got into with people who wanted to know how we were getting the light pattern to synchronize with the music so beautifully. It was perceptually obvious to them that the light patterns and music were synchronized, and so there had to be some

highly sophisticated electronic system synchronizing the sound and the light. I would explain that there was no hidden mechanism for synchronization, it was just a bunch of light bulbs blinking in a quite random way, but almost no one would believe me. Finally I would "admit" that, although it was hidden from their sight, there really was a very sophisticated computer synchronizing the light patterns and the music. This explanation was not really a lie. The "computer" was (and is) located in each viewer's head, and one of its main functions is to "synchronize" events, to "make sense" out of an incredibly complex world. The accepted modern understanding (which I think is actually incomplete in important ways, but that is not germane to our discussion here- see [Tart, 1990a] ) , starting with a materialistic view of the world, indicates that we do not experience the outer world directly but indirectly . Various physical energies like light and sound are not experienced directly. [...] what we experience is not the world per se but processed neural abstractions. Although these neural events are initially related to external world events, this relationship may be greatly altered by the time we deal with the final neural events comprising consciousness. That final pattern of neural events that we are conscious of, and the other neural events that lead to it, are our personal World Simulation Process, our mechanism creating the virtual reality in which we experientially live. The structure of our nervous system, as programmed by our personal psychology, constitutes our stereo headphones and "eyephones," our "touchphones," "tastephones," and "smellphones". [...] *"The basic function of the World Simulation Process is to create, maintain, expand and update internalized, rapidly functioning internal models of the real world that will enable us to survive and function efficiently..."* (Fodor, 1985, p.4) [...] What are the limits of arbitrariness of construction of our internally generated virtual realities that are compatible with survival?' (Tart 1990)

- 'Let's take, first of all, two very fundamental poles. We'll call them respectively 'solid' and 'space,' if you want existence and non-existence, because we tend to treat space as something that is not there. That's simply because we don't see it; we ignore it. We treat it as if it had no effective function whatsoever, and thus when our astronomers begin to talk about curved space, expanding space, properties of space, and so on, we think 'What are they talking about? How can space have a shape? How can there be a structure in space, because space is nothing.' But it isn't so. You see, this is something we completely ignore. Why? Because we have specialized in a form of attention to the world which concentrates on certain features as important. We call this conscious attention, and therefore it ignores or screens out everything which doesn't fit into its particular scheme. And one of the things that doesn't fit into our scheme is space. So we come into a room like this and notice all the people in the room, and the furniture, and the flowers and the ornaments, and think that everything else just isn't there. I mean, what about this interval that is between me sitting here and the inner circle of people who are arranged around the floor? What a mess we would be in if there wasn't that interval. You know, I would be blowing down your throat to talk to you. Now intervals of this special kind are tremendously important. Let me demonstrate this to you in a musical way. When you listen to a melody, what is the difference between hearing that melody and hearing a series of noises? The answer is that you heard the intervals. You heard the musical spaces between the series of tones. If you didn't hear that, you heard no melody, and you would be what's called tone-deaf. But what you actually hear is the steps between the levels of sound--the levels of vibration--that constitute the different tones. Now those weren't stated, they were tacit. Only the tones were stated, but you heard the interval. So it made all the difference whether you heard the interval or not. So in exactly the same way, the intervals between us, seated around here, constitute many important things.' (Watts undated)
- 'Mind itself has no substance. It has no colour or shape. It has no form, no position, no characteristics, no beginning, no end. It is neither within nor without [...] It is beyond logical process, beyond time and beyond all existence. [...] There is no other 'thing' to obscure the moment – neither a subject nor an object, neither time nor space. [...] The "field" of awareness is... neither "outside" the body nor "inside" the mind. It is neither mental nor physical [...] Just relax, without effort, completely natural... This is the natural state of mind which is our own self-healer.' (Tulku 1976)

## Extracts F16 – Variable body: twist, degeneration, ‘incomplete’

A number of ‘anomalies’ in anatomy and physiology are unexplained, ‘not well understood’, considered normal statistically, or explained by growth being too fast or unfinished (in children before puberty) or as being inevitable or necessary. For many of them, there does not seem to be any intrinsic reason, and nexial-topologic modelling could shed light on how these anomalies happen.

### ***Variable Body: twisted, ‘growing too fast’, degenerating, incomplete...***

- Twisted shape of heart attributed to ‘growing too quickly’: ‘At the time the four chambers [of the heart] appear, the heart starts bending into an S shape. The ventricle moves caudally and the atrium cranially, assuming their adult positions. This bending occurs because the ventricle and bulbus cordis grow quickly, and the heart is unable to accommodate elongation within the confines of the pericardial sack. During month 2 of [fetal] development, the heart divides into its four definitive chambers by the formation of its midline septum and valves.’ (Marieb & Mallatt 2003, p.538)
- Right lymphatic duct: ‘Whereas some individuals have two lymph ducts, others have just one. [...] When it is joined by the three trunks, the thoracic duct drains three quarters of the body: the left side of the head, neck, and thorax; the left upper limb; and the body’s entire lower half’. Some people have a short right lymphatic duct...; when present, its trunks drain the upper right quarter of the body.’ [4<sup>th</sup> lymphatic trunk] (Marieb & Mallatt 2003, p.589)
- Spinal cord of complete length until 3<sup>rd</sup> month of fetal development; but then recedes: ‘Until the third month of development, the spinal cord does run all the way to the coccyx, but thereafter, it grows slower than the caudal vertebral column... By the time of birth, the spinal cord ends at L3. During childhood, it attains its adult position terminating at the level of the intervertebral disc between L1 and L2. (This is merely an average level; it varies among different people, from the inferior margin of T12 to the superior margin of L3.’ (Marieb & Mallatt 2003 p.394) The spinal cord also has bulges.
- Brachial plexus: bundle of nerves that supplies the arms, gathered from C5-C8-T1, sometimes also from C4 or T2. . (Marieb & Mallatt 2003 p 429)
- Loss of red bone marrow (becoming fatty yellow marrow that does not make red blood cells);
- Thymus growth until puberty and then atrophy (shrinking): ‘Prominent in newborns, the thymus continues to increase in size during childhood, when it is most active. During late adolescence, it begins to atrophy gradually, as its functional tissue is slowly replaced with fibrous and fatty tissue.’ (Marieb & Mallatt 2003, pp.595-6)

After puberty, it ‘undergoes a gradual process of involution (replacement of parenchyma by fat and fibrous tissue), resulting in a slow decline of immune function throughout adulthood.’ (Thymus 2006)

- Tonsils regressing after 14: ‘The tonsils are regressing by age 14. [...] After childhood, some immune organs become less active and begin to shrink... and late in life... their efficiency... wanes. [...] Just why this decline occurs is not understood.’ (Marieb & Mallatt 2003, p.599)
- ‘The immune system of newborns was long thought to be too immature to attack invading pathogens.... New, redesigned experiments have shown that newborns respond to new antigens just as vigorously as do adults, with both T cells [thymic] and antibodies.’ (Marieb & Mallatt 2003, p.599)



- Loss of brown fat: 'Brown Adipose Tissue. The typical nutrient storing fat we have considered so far is white adipose tissue or white fat. Another type called brown adipose tissue, produces heat and is a nutrient consumer. Such brown fat occurs only in babies, who cannot yet warm themselves by shivering. It is located in the hypodermis between the two scapulae (shoulder blades) in the center of the back, on the side of the anterior neck, and on the anterior abdominal wall. It is even more richly vascularized than white fat. Each brown-fat cell contains many lipid droplets and numerous mitochondria, which use lipid fuel to heat the bloodstream rather than produce ATP molecules.' (Marieb & Mallat 2003 p.98)
  - Cisterna Chyli: '... in 30-40% of people, the inferior portion of the thoracic duct of the lymphatic system includes a dilated portion called the cisterna chyli which sits on the L1 and L2 vertebral bodies.' (Marieb & Mallat 2003 p.589)
  - Spleen size and loss of hematopoiesis function: 'The size of the spleen varies greatly among individuals. [...] The spleen is a site of hematopoiesis in the fetus [...] and can resume this function under certain circumstances, even in the adult. [...] The spleen can regenerate [...] and [spleen] can resume this function under certain circumstances, even in the adult.' (Marieb & Mallatt 2003, pp.595-6)
  - Bone marrow function: 'At birth, all marrow is red. ... The replacement of red marrow with yellow marrow in the limbs occurs between the ages of 8 and 18 years.' (Marieb & Mallatt 2003, p.512) 'Liver and spleen... are the major hematopoietic organs until month 7 [of gestation, when] bone marrow become the major [source] and is the only hematopoietic organ from birth on. Should a severe need for blood cell production arise, however, the liver and spleen may resume their blood-cell-forming roles, even in adults. [...] The most common diseases of the blood that appear with ageing are chronic leukemias, anemias, and clotting disorders... The formation of abnormal thrombi and emboli reflects the progress of atherosclerosis, which roughens the linings of arterial walls.' (Marieb & Mallatt 2003, p.518)
  - Spine curvatures: 'Normal' spine twists ( e.g. scoliosis, and the 'curves' of normal posture, at T1, T5, L2, Left-right deformations of spine ('slight scoliosis')
  - Parotid gland : Accessory parotid gland (glandula parotida accessoria) is a frequently present, more or less detached portion of the parotid gland' (Marieb p. 643)
  - Embryonic renal arteries: 'the upper embryonic renal arteries are not degenerated in 30% of people' (Marieb & Mallat 2003 p.684) – see Gould 1995 pp.42-43 on successful adaptations by degeneration as much as by complexity increase)
  - Bone renewal decreasing from birth.
  - Tissue repair & scar tissue: 'Tissue repair can occur in two major ways: by regeneration and by fibrosis. Regeneration is the replacement of a destroyed tissue by new tissue of the same kind, whereas fibrosis involves the proliferation of a fibrous connective tissue called scar tissue. [...]Tissue repair in a skin wound involves both regeneration and fibrosis. [...] The blood clot is replaced by granulation tissue, a delicate pink tissue containing capillaries... and proliferating fibroblasts that produce new collagen fibers. [...] As more collagen is made, the granulation tissue transforms into fibrous scar tissue.' (Marieb & Mallatt 2003, p103)
- 'Histamine, the most important mediator, increases the permeability of the nearby capillaries, causing more tissue fluid to leave the bloodstream. The consequent swelling of the areolar tissue with fluid is a major characterisation of inflammation. Heparin in mast cells was recently found to bind and store the other mast cell molecules, and to regulate their action. Besides mediating inflammation, mast cells also seem to play a role in our defences against parasitic worms, our natural immunity against bacteria, and the normal repair of fibers, ground substance and blood vessels in connective tissues.' (Marieb & Mallatt 2003, p.91)
- Projections of pain or structural damage to Left or Right: eg *spinal twists (eg scoliosis, facial features twisting 'with age', alternate nostrils breathing, face and body weakness*

- Preferences: many chronic diseases are more common in women and children (and other types in men)
- Alternate nostrils breathing (see below).

### **'Normal' Adult:**

- 'Gravid' female: post-pregnancy weak health, partum pain, female instability.
- Sensitivity to 'outside' conditions ('attacks').
- Sensory (visual, auditory) with other senses blunted, and without 'sensing', physiologic instincts geared to support brain activity, aimed at sustaining work-stress-alert; loss of internal sensation (body-self) and insensitivity to 'others' and self-ish survival behaviour of body-mind-person.
- Uneven body temperature such as hot or cold head, hot body by almost +1°C (36.5°C →37.2°C) (with dire effect on histidine and ground substance), infants do not shiver + infant's heat has an even distributed body-brain (MRI imaging).
- Drink a lot of drinks spiked with juice or other stimulants, yet do not assimilate very effectively (water metabolism ineffective); end of day swelling and dark under eyes = 'tired', problems of blood pressure, blemished or uneven skin (hence make-up), livid lips or even face (hence lipstick).
- Problems digestion and malabsorption (eg vitamins straight into urine, constipation), eat a lot and at appointed times, need to eat cooked and processed foods, biased taste: carbohydrates, proteins or oils, altered taste (not attracted to fresh foods); need compensatory nutrition chronically (salt, sugar, sour or bitter, culinary herbs), addictions (including work, sex), dependencies (including social).
- Need countless compensatory contraptions to hold body up (eg chair back), to protect (hat, sunglasses, sunscreen, heating, air conditioning, vaccines...), to compensate for physical stiffness or weakness (eg furniture, houses, vehicles); worry, anxiety, drives, psycho-somatic tension, 'monkey mind', agitated living.
- Poor breathing (eg uneven L-R nostrils air flow, swollen sinuses & clogged nose with ageing, top of lungs or into belly, through mouth, or blocking, anaerobic mode and oxidant species of oxygen,);

Ageing damage: balding arthritis, senile brain, loosing eyes/ears/ teeth/ mind / body limbs function, swollen belly, mass turning to cellulite, getting fat, shrinking or concretions, growths, muscles, liver and heart turn to fat: 'normal with ageing'.

### ***Self reports concerning sinuses clogging and headaches in older adults considered healthy are common – a 'hidden' or 'small' problem:***

- Self-report – 'One morning I had painfully clogged sinuses. No amount of blowing gave me relief. But two minutes of Qigong had my sinuses draining and completely pain free. For me these common occurrences have made the course valuable beyond estimation.' (Bissonnette . 2006)
- Self-report – '*Partly hidden upsides to using ROBERTA every day: health: [...] I no longer wake up with clogged sinuses; my body feels relaxed; and free of headaches, my skin is clear, I'm more careful what I eat, I remember to exercise and I put more energy into it.*' (*Effort free newsletter*, 2005)

### ***Childhood***

#### **'Normal' illnesses of childhood:**

Ear infections, tonsils infections, 'cold', fever, flu, upper respiratory infections, asthma; spreading incidence of early puberty (two or three years) or too fast, acne (spreading on face, spreading in population), of diabetes and cancer.

**Normal neonatal disorders:**

Blemishes at birth (eg taches *café au lait* on most people's body); neonates do not shiver to warm up or have a hypoxic drive for breathing: they learn it; baby colic; problems with sleep; problems behaviour: ankle biting, 'terrible two', tantrum.

**Normal discomforts of childhood, some 'hidden' to most adult's awareness:**

Bed wetting, , hiccups (especially when eating dry food), car sickness, nausea, pain in the side from lack of oxygen; problems sleep: nightmares, fear of the dark, of monsters, agitated sleep, wake up at night, alteration of bio-rhythm (circadian rhythms) until it becomes difficult to wake up in the morning and bedtime becomes late; problems with feeding (dependence on repetitive feeding), diet (developing need for sugar and processed carbohydrates-fats-meats and dislike of fresh foods); developing digestive ineffectiveness and disorders; Left-right deformations of spine (slight scoliosis), face and body one-sided weakness (becoming more apparent with age); 'extremely healthy' (no bacterial, fungal or viral infections, but other problems present.

**Normal unstable childhood:**

Medical statements about these conditions: Normal children... 'grow out of it'; more girls or boys; not sick; not harmful, the ailments or 'bad behaviour' are triggered by:

tiredness, anger, frustration, stress, anxiety;

'occurs when relaxed, bored, or tired'

'associated with ear infection, emotional distress'

to stop the triggering: soothing or calming or help sleep.

**Abnormal 'extremely healthy':**

Unexplained 'extremely healthy' (no bacterial disease) can result in early ageing affecting especially brain and kidneys; found also in some mystics. (The opposite is known: many mystics or geniuses are afflicted with illnesses.)

**'Normal' weird or 'badly behaved' bodymind ... until 'mature brain' (Western) or 'mature kidneys' (China)**

Breath holding (begins 6 months-2y, stops by 5-6y... but then kids unconsciously train to stay underwater... for anaerobic drive?), developing into training hypoxic drive (eg when swimming); nose picking (starts 4-5 y); thumb sucking or finger or cloth (50% age 2-4); hair twisting or pulling; nail biting (30-60% aged 5-10, 20% teenagers, more in those with flaky nails); bruxism (tooth grinding) (more than 50%, 15% adults, particularly noticeable 6months & 5y when teeth come in); head banging (15%) and other rhythmic movements: rolling, rocking and swirling; self-hurt, running into things, falling, not knowing one's strength; problems behaviour: 'ankle biting', 'terrible twos', hyper-active ('full of beans' to ADHD) / hypo-active (dislike of walking, won't exercise), developing egoism from shyness or teasing and bullying, developing chaos of behaviour, emotion and psychology in teenage, spreading addiction to over-focused activity (often technology-related)

**Normal behaviours:**

Chronic sneeze-stretch-yawn, 'boredom'; dry, 'stinging' eyes (itchy or burning) and 'sand' at corner of eyes morning and night, multiple bruises, thirst up to eating ice, morning swelling, *poing-de-côté* (side pain when running and lacking oxygen), increasing incidence of headaches; loss of body tone by age 6, and postural slouch, increasing incidence of diffuse pain (eg feet hurt when walking on pebbles or when jumping down with whole body weight); feeling hot when adults feel cold and impose coat; thumb or blanket sucking, twisting hair, and other repetitive behaviour; progressive change of taste in foods (especially learning to like tomato, onion, garlic, 'dark' tastes such as coffee or wine [or being unable to learn to like]); play with holding breath underwater (unconscious self-training to trigger breathing by lack of oxygen). See also 'green sickness' (chlorosis).

**Approximate body**

'For complex reasons slightly *more* tissue fluid arises from the arteriole end ("upstream" end) of each capillary bed than reenters the blood at the venue end ("downstream" end). The lymphatic vessels functions to collect this excess tissue fluid and return it to the bloodstream. Indeed, any blockage of the

lymphatic vessels causes the affected body region to swell with excess tissue fluid, a condition called *edema*.' (Marieb & Mallatt 2003, p.584) (see <Extracts F10\ Left-Right>)

### ***Uneven nostril breathing and 'alternate nostril breathing' yogic practices***

- 'Uninostril breathing facilitates the performance on spatial and verbal cognitive tasks, said to be right and left brain functions, respectively. Since hemispheric memory functions are also known to be lateralized, the present study assessed the effects of uninostril breathing on the performance in verbal and spatial memory tests. School children (N = 108 whose ages ranged from 10 to 17 years) were randomly assigned to four groups. Each group practiced a specific yoga breathing technique: (i) right nostril breathing, (ii) left nostril breathing, (iii) alternate nostril breathing, or (iv) breath awareness without manipulation of nostrils. These techniques were practiced for 10 days. Verbal and spatial memory was assessed initially and after 10 days. An age-matched control group of 27 were similarly assessed. All 4 trained groups showed a significant increase in spatial test scores at retest, but the control group showed no change. Average increase in spatial memory scores for the trained groups was 84%. It appears yoga breathing increases spatial rather than verbal scores, without a lateralized effect.' (Naveen et al. 1997)
- 'Mind–body interventions are beneficial in stress-related mental and physical disorders. Current research is finding associations between emotional disorders and vagal tone as indicated by heart rate variability. A neurophysiologic model of yogic breathing proposes to integrate research on yoga with polyvagal theory, vagal stimulation, hyperventilation, and clinical observations. Yogic breathing is a unique method for balancing the autonomic nervous system and influencing psychologic and stress-related disorders. Many studies demonstrate effects of yogic breathing on brain function and physiologic parameters, but the mechanisms have not been clarified. Sudarshan Kriya yoga (SKY), a sequence of specific breathing techniques (ujjayi, bhastrika, and sudarshan Kriya) can alleviate anxiety, depression, everyday stress, post-traumatic stress, and stress-related medical illnesses. Mechanisms contributing to a state of calm alertness include increased parasympathetic drive, calming of stress response systems, neuroendocrine release of hormones, and thalamic generators. This model has heuristic value, research implications, and clinical applications.' (Brown & Gerbarg 2005)

## Extracts F17 – Anatomy notes

The following are notes I gathered so I could refer to them often, to make connections with sensations observed directly and observations of the bodies of others. Some are straight quotations taken from medical textbooks, some are summaries I wrote for myself. They may be useful to the reader who wishes to explore the body and health in a way similar to the way I did, through a ‘somato-analysis’ (physical version of a psycho-analysis).

### Ground substance and other ‘waters’ (serous fluids)

#### **Ground substance holds fluid**

- ‘All other tissues and cells in the body either border areolar connective tissue or are embedded in it’ (Marieb & Mallatt 2003, p.89)
- ‘A single kind of cell produces all the fibers of areolar connective tissue: fibroblasts.’ (Marieb p.90)
- ‘The molecules of ground substance are made and secreted by the nearby fibroblasts.’ (Marieb p.91)
- ‘Recall that areolar connective tissues lies between the capillaries and all other cells and tissues in the body, such as epithelium and muscle. Nutrients and oxygen diffuse out of the capillaries and travel through a watery fluid in the extracellular matrix to reach the surrounding cells. Likewise, waste molecules from these cells diffuse back through this fluid into the capillaries, to be taken away by the bloodstream. The fluid that occupies areolar connective tissue is called tissue fluid or *interstitial fluid* and it derives from the blood itself. That is, all the small molecules of blood (ions, water and so on) are slowly pushed out through the capillary walls to form tissue fluid, which gradually returns to the blood stream at about the same rate it forms. In your body, there is as much tissue fluid in the matrix of areolar connective tissue as there is blood in all your blood vessels. The part of the extra-cellular matrix that holds this tissue fluid is called ground substance. This jelly-like material consists of large sugar and sugar-protein molecules that soak up fluid like a sponge. These molecules are called glycosaminoglycans and proteoglycans. The molecules of ground substance are made and secreted by the nearby fibroblasts.

So far, we have established that the extracellular matrix of connective tissue is a combination of (1) fibers (2) fluid-holding ground substance. We should now add (3) that fibroblasts attach to the matrix components through integral proteins in their plasma membranes called *integrins*.’ (Marieb p.91)

‘For complex reasons, slightly more fluid arises from the arteriole end (‘upstream’ end) of each capillary bed than reenters the blood at the venule end (‘downstream’ end). The lymphatic vessels function to collect this excess tissue fluid and return it to the bloodstream. Any blockage of the lymphatic vessels causes the affected body region to swell with excess tissue fluid, a condition called edema.’ (Marieb p.584)

‘Water, like other molecules, diffuses down its concentration gradient. The diffusion of water molecules across membranes is called osmosis.’ (Marieb p.30)

3 types of connective tissue fiber: collagen, reticular, elastin (Marieb p.90)

#### **Bursae and tendon sheaths**

- ‘*Bursae and tendon sheaths* are not synovial joints, but they contain synovial fluid and often are associated with synovial joints. Essentially closed bags of lubricant, these structures act like ‘ball bearings’ to reduce friction between body elements that move over one another. A bursa, a Latin word meaning ‘purse’, is a flattened fibrous sac lined by a synovial membrane. Bursae occur where ligaments, muscles, skin, tendons, or bones overlie each other and rub together. A tendon sheath is

essentially an elongated bursa that wraps around a tendon like a bun around a hot dog. Tendon sheaths occur only on tendons that are subjected to friction, such as those that travel through joint cavities or are crowded together within narrow canals (in the wrist region, for example).’ (Marieb, p.219)

- **‘Bursitis:** inflammation of a bursa, usually results from a physical blow or friction although it may also be caused by arthritis or bacterial infection. In response, the bursa swells with fluid. Falling on ne’s knee can cause a painful bursitis of the subcutaneous prepatella bursa known as housemaids’s knee.’ (Marieb p.236)
- ‘Most knowledge of human synovial fluid comes from patients with joint disease. Because of the clinical frequency, volume, and accessibility of knee effusions, our knowledge is largely limited to findings in that joint.’ (UW Medicine 2005)

#### *Lymphatic system:*

(See also lymphocytes in bone marrow, serous cells, cerebrospinal fluid.).

#### **Lymphatic vessels**

lymphatic vessels, ducts and trunks, collect the lymph (*lymph*, ‘clear water’) that escapes from blood capillaries into loose connective tissue (which contains tissue fluid), and transport the fluid back to the blood stream, to the veins at the root of the neck. Lymph vessels carry nutrients, proteins, and lymphocytes.

The unpaired *intestinal trunk* receives milky lymph containing digested fats – the chyle (“juice”) – from the small intestines and carries it to the *cisterna chyli*, which sits on the L1 and L2 vertebral bodies, and on to the neck vein and the heart.

The lymph also irrigates the inner ear labyrinth internally (*endolymph*) and externally (*perilymph*); these clear fluids are separate but the *perilymph* is continuous with the *cerebrospinal fluid*.

- ‘The bony labyrinth [of the inner ear] is filled with a clear fluid called perilymph (“surrounding water”) [which] is continuous with the cerebrospinal fluid that fills the subarachnoid space.’ (Marieb & Mallatt 2003, p489)
- ‘Whereas some individuals have two lymph ducts, others have just one. [...] When it is joined by the three trunks, the thoracic duct drains three quarters of the body: the left side of the head, neck, and thorax; the left upper limb; and the body’s entire lower half’. Some people have a short right lymphatic duct...; when present, its trunks drain the upper right quarter of the body.’ (Marieb, p.589)

The largest vessels are the *lymph ducts*. Lymph capillaries are absent from bone, teeth, bone marrow, and the entire nervous system, which is irrigated by the *cerebrospinal fluid*.

Lymph flows only one way, toward the heart, and under very low pressure, using valves, muscles, the body’s movements and other local pulsations.

- ‘The seemingly useless nervous habit of people who bounce and wiggle their legs while sitting actually performs the important function of moving lymph up the legs.’ (Marieb p.586)  
‘For complex reasons slightly *more* tissue fluid arises from the arteriole end (“upstream” end) of each capillary bed than reenters the blood at the venue end (“downstream” end). The lymphatic vessels functions to collect this excess tissue fluid and return it to the bloodstream. Indeed, any blockage of the lymphatic vessels causes the affected body region to swell with excess tissue fluid, a condition called *edema*.’ (Marieb p.584)
- ‘Water, like other molecules, diffuses down its concentration gradient. The diffusion of water molecules across membranes is called osmosis.’ (Marieb p.30)
- ‘The lymphatic vessels also perform another, related function. Blood proteins leak slowly but steadily from both capillaries into the surrounding tissues fluid, and the lymph vessels return these leaked proteins to the bloodstream... The proteins in blood generate osmotic forces that are essential for keeping water in the bloodstream. If proteins were allowed to leak from the capillaries without being returned to the bloodstream, a massive outflow of water from the blood to the tissues would soon follow, and the entire cardiovascular system would collapse from insufficient volume.’ (Marieb p.584)

### ***Paths of immune activation and defence***

The main components of the immune system are:

Lymphoid organs (organs of immune defence): lymph nodes, thymus, spleen, pharyngeal tonsils (adenoids), adenohypophysis (part of the pituitary), Peyer's patches in small intestine and appendix.

Lymphoid tissues: inside lymph nodes, and Mucosa associated lymphoid tissue (MALT) in digestive respiratory and reproductive tracts

- 'Lymphoid tissue [...] is an often-infected connective tissue in which vast quantities of lymphocytes gather. [...] This tissue has two general locations: (1) in the frequently infected mucous membranes of the digestive, respiratory, urinary, and reproductive tracts, where it is called mucosa-associated lymphoid tissue or MALT' and (2) in all lymphoid organs but the thymus..' (Marieb p. 593)
- 'The structural features of lymphoid tissue serve its infection-fighting role. It is a reticular connective tissue whose basic framework is a network of reticular connective fibers secreted by reticular cells (fibroblasts). (Marieb p. 595)
- 'Within the spaces of this network, reside the many T and B lymphocytes that arrive continuously from the venules coursing through this tissue. Macrophages on the fiber network kill invading organisms by phagocytosis...' (Marieb p.595)
- 'bone marrow is a reticular connective tissue made of a network of reticular fibers secreted by special fibroblasts, the 'reticular cells.' (Marieb p.512)
- 'Liver and spleen... are the major hematopoietic organs until month 7 [of gestation, when] bone marrow become the major [source] and is the only hematopoietic organ from birth on. Should a severe need for blood cell production arise, however, the liver and spleen may resume their blood-cell-forming roles, even in adults. [...] The most common diseases of the blood that appear with ageing are chronic leukemias, anemias, and clotting disorders... The formation of abnormal thrombi and emboli reflects the progress of atherosclerosis, which roughens the linings of arterial walls.' (Marieb p.518)

(Thymus: made up of two uneven lobes. Sometimes a third part exists: the accessory thymus is a separated portion of the thymus gland.)

### ***Serous glands, cells, secretions & membranes***

*Serous glands:* Saliva glands, tear glands, parotid glands (open into the mouth, lateral to the second upper molar), ceruminous glands (in ear canal: modified sweat glands emit the waxy secretion that is part of earwax), sweat glands: eccrine (true sweat, respond to heat + stress, acid but no smell, 99% water) apocrine (activated at puberty, true sweat combined with fat and protein, give a smelly, viscous secretion; sebaceum). (see parotid gland)

The parotids secrete only when eating or anticipating a meal, and sit near the ear and the temporomandibular joint. Salivary glands contain serous (or seromucous) cells that secrete serous saliva but also some mucus.

These are exocrine glands that secrete into body surfaces or into body cavities.

*Serous cells* produce watery secretions (different from mucous cells which produce mucus)

*Slippery serous fluid of serosae:*

Serous fluid begins as filtrate from the blood in capillaries in the connective tissue, with the addition of lubricating molecules by the mesothelium.

Serosae: pleura, peritoneum, pericardium – are membranes lining [surfaces of] closed cavities and containing a thin layer of serous fluid. = squamous epithelium on a layer of areolar connective tissue. Secretes a slippery serous fluid.

*Different from:*

Mucous membranes that line the [surfaces of] tubes of 4-respiratory, 2-digestive, 3-reproductive, 1-urinary tracts – Wet & Moist.

cutaneous membrane = skin covering the outer surface = outer epithelium is thick dermis + inner connective tissue is dense dermis – Dry.

serous gland – protein-rich secretion  
 mucous gland – glycoprotein-rich secretion

### **CerebroSpinal Fluid:**

- ‘The Cerebrospinal fluid bathes the brain and fills the subarachnoid space all along the spine.’ (Marieb p.489)
- ‘The bony labyrinth [of the inner ear] is filled with a clear fluid called perilymph (“surrounding water”) [which] is continuous with the cerebrospinal fluid that fills the subarachnoid space.’ (Marieb p.489)

### **Parotid gland:**

- ‘The dominant symptom [of Mumps] is inflammation and swelling of the parotid gland... People with mumps say it hurts to open their mouth or chew.’ (Marieb p.643)
- ‘The secretory cells of the salivary glands are serous cells, which produce a watery secretion containing enzymes and ions of saliva, and mucous cells, which produce mucous. The parotid glands contain only serous cells.’ [...] ‘accessory parotid gland (glandula parotida accessoria) is a frequently present, more or less detached portion of the parotid gland’ (Marieb p.643)

### **Mucosal surfaces: nutrient absorption or defence secretion**

- ‘The physical and chemical barriers of natural immunity: [...] The mucosal surfaces, whose normal physiological functions are absorptive, require the special protection provided by the secretion of mucus and enzymes like lysozyme. If any of these external surfaces are breached, then a variety of cells and secreted molecules provides rapid protection against infection.’ (Staines & Brostoff 1993 p.10)

## Bone Marrow, blood, fats, and nerves

### **Bone marrow**

RED → in end of long bones (the body of bone is yellow),  
 → either blood cells or immune lymphocytes

→ now: stem cells → progenitor cells → red blood cells OR fat, fibroblasts, osteoblasts, chondrocytes (cartilage)

YELLOW → = red degenerated into fat [can revert]

CHOICE: Red Bone marrow connective tissues

→ stem cells → bone-making cells

→ or immature hematopoietic stem cells → macrophages and bone-destroying cells.

- Flat bones have red or yellow marrow in their spongy bone. (Marieb p.134-135)
- ‘Yellow marrow is a site for fat storage, with little or no role in blood-cell formation.’ (Marieb p.133)
- ‘Only Red [bone] marrow actively generates [red] blood cells [hematopoiesis]. Yellow marrow is dormant; it makes blood cells only in emergencies. [Its] colour reflects the many fat cells it contains. At birth, all marrow is red. In adults, red marrow remains throughout the axial skeleton and girdles and in the proximal epiphysis of each humerus and femur; yellow marrow occupies all other regions of the long bones of the limbs. The replacement of red marrow with yellow marrow in the limbs occurs between the ages of 8 and 18 years.’ (Marieb p.512)
- ‘At birth, all marrow is red. ... The replacement of red marrow with yellow marrow in the limbs occurs between the ages of 8 and 18 years.’ (Marieb, p.513)
- ‘Low oxygen stimulates erythrocyte production’ (Marieb p.513)
- The structure of bone marrow is secreted by fibroblasts. (Marieb p.512-3)
- ‘The kidney secretes erythropoietin, which signals the bone marrow to increase the production of red blood cells.’ (Marieb p.759)



### **Blood cells lines in red bone marrow**

- 'Pluripotential hemopoietic stem cells [...] produce lines of progenitor cells of two types: lymphoid stem cells, which give rise to lymphocytes [and osteoclasts (Marieb p.142-143)] , and myeloid stem cells.', which give rise to all other blood cells, ' [including erythrocytes]. (Marieb p.513)
- 'Recently, it was found that some of the cells [in red bone marrow] are human mesenchymal stem cells... [that] can give rise to fat cells, osteoblasts, chondrocytes, fibroblasts, and muscle cells. This raises the exciting possibility that such cells can be extracted and used to regenerate all types of connective tissue and muscle for tissue and organ replacement.' (Marieb p.513)
- '[...] bone-forming osteoblasts derive from mesenchyme cells, or, in the adult, from mesenchyme-like stem cells in the connective tissues of the nearby bone marrow. Osteoclasts, by contrast, arise from immature blood cells called hematopoietic stem cells, and they may be related to macrophages. (Marieb p.142-143)
- '[...] bone marrow ... is the only hematopoietic organ from birth on..' (Marieb p.518)
- 'Liver and spleen... are the major hematopoietic organs until month 7 [of gestation, when] bone marrow become the major [source] and is the only hematopoietic organ from birth on. Should a severe need for blood cell production arise, however, the liver and spleen may resume their blood-cell-forming roles, even in adults. [...] The most common diseases of the blood that appear with ageing are chronic leukemias, anemias, and clotting disorders... The formation of abnormal thrombi and emboli reflects the progress of atherosclerosis, which roughens the linings of arterial walls.' (Marieb p.518)
- *fat in bone marrow is white fat:* 'adipose tissue', a loose connective tissue similar to areolar connective tissue but has a nutrient function. In bone marrow, it is deposited in fat cells (Marieb p.97).
- 'The bone marrow, spleen and lymph nodes, which house many free blood cells outside of their capillaries, consist largely of reticular connective tissue. Fibroblasts called reticular cells lie along the reticular network of this tissue.' (Marieb p. 98, reticular tissue is discussed further p.512 and p.593, p. 595)

3 types of fiber: collagen, reticular, elastin (Marieb p.90) of the areolar connective tissue

- 'Lymphoid tissue [...] is an often-infected connective tissue in which vast quantities of lymphocytes gather. [...] This tissue has two general locations: (1) in the frequently infected mucous membranes of the digestive, respiratory, urinary, and reproductive tracts, where it is called mucosa-associated lymphoid tissue or MALT' and (2) in all lymphoid organs but the thymus..' (Marieb p.593) 'The structural features of lymphoid tissue serve its infection-fighting role. It is a reticular connective tissue whose basic framework is a network of reticular connective fibers secreted by reticular cells (fibroblasts). (Marieb p. 595)
- Bone marrow is a reticular connective tissue made of a network of reticular fibers secreted by special fibroblasts, the 'reticular cells. (Marieb p.512)
- 'Within the spaces of this network, reside the many T and B lymphocytes that arrive continuously from the venules coursing through this tissue. Macrophages on the fiber network kill invading organisms by phagocytosis...' (Marieb p. 595)
- 'Vitamin D: The Photolytic Reaction – Vitamin D should be reclassified as a hormone since it is only under conditions of inadequate exposure to sunlight that dietary intake is required. Vitamin D is in fact a group of closely related sterols produced by the action of ultraviolet light on certain provitamins, ergosterol in plants and 7-dehydrocholesterol in animals. The latter is synthesized in the liver and is found in the skin. The products of the photolytic reaction are ergocalciferol (vitamin D<sub>2</sub>) and cholecalciferol (vitamin D<sub>3</sub>) respectively...both being further metabolized, converted to a series of hydroxylated derivatives ...in the liver and in the kidney, producing the active compound...Vitamin D [...] it is transported to the liver in chylomicrons. [...] The main site for further hydroxylation at the 1-position is the renal tubules, and although bone and the placenta can also carry out this reaction ...the most potent of the vitamin D metabolites and the only naturally occurring form of vitamin D that is

active at physiologic concentrations..can maintain normal serum Ca in animals that do not have kidneys or parathyroid glands.' (Baynes & Dominiczak 1999 p.112)

### **Spinal Cord:**

- 'Until the third month of development, the spinal cord does run all the way to the coccyx, but thereafter, it grows slower than the caudal vertebral column. .. By the time of birth, the spinal cord ends at L3. During childhood, it attains its adult position terminating at the level of the intervertebral disc between L1 and L2. (This is merely an average level; it varies among different people, from the inferior margin of T12 to the superior margin of L3.)' (Marieb p.394)

### **Brown Adipose Tissue (BAT, brown fat)**

Brown fat is mostly gone by the time we reach adulthood (see also Gittleman 1996, a diet to restore it).

- 'The typical nutrient storing fat we have considered so far is white adipose tissue or white fat. Another type called brown adipose tissue, produces heat and is a nutrient consumer. Such brown fat occurs only in babies, who cannot yet warm themselves by shivering. It is located in the hypodermis between the two scapulae (shoulder blades) in the center of the back, on the side of the anterior neck, and on the anterior abdominal wall. It is even more richly vascularized than white fat. Each brown-fat cell contains many lipid droplets and numerous mitochondria, which use lipid fuel to heat the bloodstream rather than produce ATP molecules.' (Marieb p.98)

*Thermogenin: a natural uncoupler:*

- 'Brown adipose tissue is abundant in newborn and hibernating animals. The brown colour is due to the high concentration of mitochondria, rich in cytochromes. Mitochondria of brown adipose tissue are uncoupled by a specialized inner membrane protein called...thermogenin...bypassing ATP synthase. Because the oxidative energy is released as heat, rather than as ATP, thermogenin is released as heat, rather than as ATP, thermogenin is believed to be involved in...protection of vital internal organs during variations in body temperature in the newborn.' (Marieb p.98)

### **White Adipose Tissue (yellow fat)**

- 'Adipose tissue is abundant in the mesenteries, which are sheets of serous membranes that hold the stomach and intestines in place. Additionally, fat forms cushioning pads around the kidneys and behind the eyeballs in the orbits. [...] Smaller depots of fat serve the local nutrient needs of highly active organs. Such depots occur around the hard-working heart and around lymph nodes... within some muscles, and as individual cells in the bone marrow. 'The typical nutrient storing fat we have considered so far is white adipose tissue or white fat.' (Marieb p.97, see brown fat)

## Histology (cells, fibre & inflammation)

### **Fibroblasts**

*Fibroblasts with various names secrete:*

- ground substance molecules,
- bone marrow,
- & all the fibers of areolar connective tissues incl. scar tissue:
- 'A single kind of cell produces all the fibers of areolar connective tissue: fibroblasts.' (Marieb p.90)
- Fibroblasts produce the molecules of the areolar connective tissue (p.90) that borders or in which all other tissues and cells are embedded (Marieb p.89):
- 'ground substance' (Marieb p.91),
- fat tissue, similar to areolar connective tissue (Marieb p. 97),
- the reticular fibers of the reticular connective tissue in lymphoid tissue, spleen and bone marrow ['defense'] (Marieb pp. 91, 595), and other fibres (collagen, elastin).  
(special fibroblast for reticular tissue of bone marrow & lymphoid tissue: 'reticular cells')

- Or they produce proliferating fibrous scar tissue (fibres transformed from collagen). (Marieb p. 103)
- 'All other tissues and cells in the body either border areolar connective tissue or are embedded in it.' (Marieb p.89)
- 'A single kind of cell produces all the fibers of areolar connective tissue: fibroblasts.' (Marieb p.90)
- 'The molecules of ground substance are made and secreted by the nearby fibroblasts.' (Marieb p.91)
- 'So far, we have established that the extracellular matrix of connective tissue is a combination of (1) fibers [collagen, elastin] (2) fluid-holding ground substance. We should now add (3) that fibroblasts attach to the matrix components through integral proteins in their plasma membranes called *integrins*.' (Marieb p.91)
- 3 types of fibre: collagen, reticular, elastin (Marieb p.90)
- bone marrow is a reticular connective tissue made of a network of reticular fibers secreted by special fibroblasts, the 'reticular cells. (Marieb p.512)
- 'Lymphoid tissue [...] is an often-infected connective tissue in which vast quantities of lymphocytes gather. [...] This tissue has two general locations: (1) in the frequently infected mucous membranes of the digestive, respiratory, urinary, and reproductive tracts, where it is called mucosa-associated lymphoid tissue or MALT' and (2) in all lymphoid organs but the thymus..' (Marieb p. 593)
- 'The structural features of lymphoid tissue serve its infection-fighting role. It is a reticular connective tissue whose basic framework is a network of reticular connective fibers secreted by reticular cells (fibroblasts). (Marieb p. 595)
- bone marrow is a reticular connective tissue made of a network of reticular fibers secreted by special fibroblasts, the 'reticular cells. (Marieb p.512)
- 'Within the spaces of this network, reside the many T and B lymphocytes that arrive continuously from the venules coursing through this tissue. Macrophages on the fiber network kill invading organisms by phagocytosis...' (Marieb p.595)

#### *Tissue repair & scar tissue*

- 'Tissue repair can occur in two major ways: by regeneration and by fibrosis. Regeneration is the replacement of a destroyed tissue by new tissue of the same kind, whereas fibrosis involves the proliferation of a fibrous connective tissue called scar tissue. (Marieb p.103)
- Tissue repair in a skin wound involves both regeneration and fibrosis. [...] The blood clot is replaced by granulation tissue, a delicate pink tissue containing capillaries... and proliferating fibroblasts that produce new collagen fibers. [...] As more collagen is made, the granulation tissue transforms into fibrous scar tissue.' (Marieb p.103)

*Scar = Heal by replacing exact tissue + fibroblasts that (1) proliferate (2) produce collagen but not ground substance !*

fibrocystic disease

fibromyalgia (fibro = muscle) – treated with anti-depressant, exercise and pain relievers.

- fibroids are slow growing, benign tumours made of smooth muscle cells and fibrous connective tissue in the wall of the uterus. 20% of all women over 30. (Marieb p.738)

See also scar tissue, body-wide stiffness, and Alzheimer's disease

#### *Types of fibroblasts*

- fibroblast: shaped like spindles or stars.
- inactive fibroblast (not secreting)= fibrocyte
- mesenchyme-like cells that become fibroblasts = perivascular cells (come from red marrow derived)

### **Connective tissues** (summarised from Marieb p.88)

areolar + adipose + dense (+ -dead) + bone/ cartilage/ blood [but Red marrow stem cells can make fibroblasts, osteoblasts makers, fat cells, cartilage, muscle cells...]

areolar connective tissue: loose (most widespread) and dense. Loose ar. conn. t. underlies almost all epithelia and surround all the small nerves and blood vessels.

- 1 support + bind other tissues: collagen (periodontitis) + reticular + elastic
2. hold fluid: ground substance
3. defence cells
4. store nutrients as fat: fat cells

- 'Liver and spleen... are the major hematopoietic organs until month 7 [of gestation, when] bone marrow become the major [source] and is the only hematopoietic organ from birth on. Should a severe need for blood cell production arise, however, the liver and spleen may resume their blood-cell-forming roles, even in adults. [...] The most common diseases of the blood that appear with ageing are chronic leukemias, anemias, and clotting disorders... The formation of abnormal thrombi and emboli reflects the progress of atherosclerosis, which roughens the linings of arterial walls.' (Marieb p.518)

- 'Age-related changes... include:

Hardening and thickening of the cusps of the heart valves, decline in cardiac reserve, fibrosis of cardiac muscle [...more and more muscles cells die and are replaced by fibrous scar tissue... more extensive in men... Also, in conjunction with the aging of muscle-cell membranes, fibrosis hinders the initiation and transmission of contraction-signalling impulses...]' (Marieb. p 539]

### **Mast cells**

- 'These oval cells lie everywhere near small blood vessels and possess many large secretory granules. Indeed *mast* means 'stuffed full (of granules)'. The granules contain many chemicals that mediate inflammation, especially in severe allergies. Such chemical mediators include histamine, heparin, and proteases (protein-degrading enzymes), and they are secreted in response to infections and to IgE, the type of antibody we produce in the presence allergy-inducing substances. Histamine, the most important mediator, increases the permeability of the nearby capillaries, causing more tissue fluid to leave the bloodstream. The consequent swelling of the areolar tissue with fluid is a major characterisation of inflammation. Heparin in mast cells was recently found to bind and store the other mast cell molecules, and to regulate their action. Besides mediating inflammation, mast cells also seem to play a role in our defences against parasitic worms, our natural immunity against bacteria, and the normal repair of fibers, ground substance and blood vessels in connective tissues.' (Marieb p.91)

### **Failing range of theory of immunity as 'learned self-recognition' /self-defence**

- 'The immune system of newborns was long thought to be too immature to attack invading pathogens.... New, redesigned experiments have shown that newborns respond to new antigens just as vigorously as do adults, with both T cells [thymic] and antibodies.' (Marieb p.599)

### **Degenerative joint disease and OsteoArthritis**

- 'Degenerative joint disease: The most common type of arthritis is osteoarthritis (OA), a chronic (long-term) degenerative condition that is often called 'wear and tear arthritis'. It is most common in the aged and is probably related to the 'normal' aging process. OA affects women more often than men, but 85% of all Americans develop this condition. OA affects the articular cartilages, causing them to soften, fray, crack and erode.

'The cause of OA is unknown. According to current theory, normal use causes joints to release metalloproteinase enzymes that break down the cartilage matrix (especially collagen fibrils); meanwhile, the chondrocytes continually fix the damage by secreting more matrix. Whenever the strain on a joint is repeated or excessive, too much of the cartilage-destroying enzyme is thought to be released, causing OA. Because this process occurs most where an uneven orientation of forces causes excessive microdamage, badly aligned or overworked joints are likely to develop OA.

The bone directly below the articular cartilage is also affected, becoming dense and stiff. As the disease progresses, bone spurs tend to grow around the margins of the damaged cartilages....The

non-synovial joints between the vertebral bodies are also susceptible, especially in the cervical and lumbar regions of the spine. ' (Marieb p.236)

### **Heart**

- 'At the time these four chambers appear, the heart starts bending into an S shape... This bending occurs because the ventricle and bulbus cordis grow quickly and the heart is unable to accommodate elongation within the confines of the pericardial sac.' (Marieb 2003 p.538)
- 'Aerobic exercise also helps clear fatty deposits from the walls of the coronary vessels, thereby retarding the process of atherosclerosis. Barring some chronic illness, this beneficial response to exercise persists into old age.' (Marieb 2003 p.539)
- 'Age-related changes... include: Hardening and thickening of the cusps of the heart valves, decline in cardiac reserve, fibrosis of cardiac muscle [...more and more muscles cells die and are replaced by fibrous scar tissue... more extensive in men... Also, in conjunction with the aging of muscle-cell membranes, fibrosis hinders the initiation and transmission of contraction-signalling impulses...]' (op.cit. p 539)
- *Congestive heart failure*: 'The cause... is unknown. One possible hypothesis is that it may involve a destructive positive feedback loop' (Marieb 2003 p.535)
- *Myocarditis*: 'Inflammation of the heart's myocardium. Sometimes follows an untreated streptococcus infection in children; may be extremely serious because it can weaken the heart...' (Marieb 2003 p.540)

*Endocarditis*: 'inflammation of the endocardium... autoimmune response' (Marieb 2003 p.540)

- *Coronary artery disease*: '... the pain of angina usually results from tissue hypoxia' (Marieb 2003 p.535)
- *Myocardial infarction*: 'If ...prolonged, the oxygen-starved cardiac muscle cells die... A sharp pain strikes... through the chest, and sometimes the left arm and left side of the neck. [...] [Some] receive warnings [and others] are victims of silent ischemia' (Marieb 2003 p.535)  
'Chest pain (angina) is the most common symptom, and it results from the heart not getting enough blood or oxygen. The intensity of the pain varies from person-to-person. Chest pain may be typical or atypical. Typical chest pain is felt under the sternum (breast bone) and is characterized by a heavy or squeezing feeling, it is brought on by exertion or emotion, and it is relieved by rest or nitroglycerin.' (MedStar 2006)

### **A candidate for nexial-topologic modelling: Bronchial asthma**

- 'Asthma, a chronic inflammatory disease of the airways involves activation of various cell types and development of various degrees of post inflammatory healing and repair processes which remodel the airways. The short duration of the severe episodes is clearly related to the degree of inflammation but the natural history of the disease itself remains unclear. Treatment must take into account the fact that clinical expression varies, associating short episodes which can be prevented or attenuated with bronchodilators and severe acute episodes which should be prevented by anti-inflammatory drugs (inhaled corticosteroids are the most effective) preferably given in the early stages of the disease and used for a prolonged period. Long term use if inhaled corticosteroids may limit airway remodelling, but there have been few long-term studies to date. Further data is required.' (Bousquet et al. 1996)
- 'The geometry and dimensions of branched structures such as blood vessels or airways are important factors in determining the efficiency of physiological processes. We present a study of the compatibility between physical optimisation and physiological robustness in the design of the human bronchial tree... Our results suggest that bronchial malfunction related to asthma is a necessary consequence of the optimised efficiency of the tree structure.' (Mauroy et. al. 2004)

**Alternate nostrils breathing:** see <Extracts F10\ Left-Right>

## Browning reaction: Maillard reaction & blemish

- 'When the amino acids and sugars are heated, they interact with each other in a phenomenon known as the Maillard reaction. The molecules of the amino acids and sugars combine to form new aromas and flavors. The Maillard reaction is also responsible for the brown color of cooked foods. It normally occurs at very high temperatures, but if there is a high concentration of sugars and amino acids, then it will occur at lower temperatures. The Maillard reaction gives toast its distinctive flavor, beer its distinctive color, and self-tanning products the power to turn skin brown.' (The accidental scientist [a], 2005)
- 'The increasing recognition of the role of the Maillard or browning reaction in both food chemistry and living systems. [...] In food technology the Maillard reaction plays a central role in the development of color, aroma, flavor, texture and nutritional value of cooked and processed foods. In humans, the Maillard reaction contributes to the increased fluorescence, color and cross-linking of extracellular proteins during normal aging. Acceleration of these reactions is implicated in the development of diabetic complications and in inflammatory processes linked to neurodegenerative diseases and atherosclerosis [...] 'shown that decreasing moisture content and increasing temperature, time or pH all increase colour development.' (Maillard Symposium 2003, see Budwig's work)
- 'The Maillard reaction occurs when the denatured proteins on the surface of the meat recombine with the sugars present. The combination creates the "meaty" flavor and changes the color. For this reason, it is also called the *browning reaction*. The Maillard reaction occurs most readily at around 300° F to 500° F. When meat is cooked, the outside reaches a higher temperature than the inside, triggering the Maillard reaction and creating the strongest flavors on the surface. In the early twentieth century, Louis-Camille Maillard happened upon what came to be known as the Maillard reaction when he was trying to figure out how amino acids linked up to form proteins. He discovered that when he heated sugars and amino acids together, the mixture slowly turned brown. [...] It normally occurs at very high temperatures, but if there is a high concentration of sugars and amino acids, then it will occur at lower temperatures.' (The accidental scientist [b], 2005)

### ***A candidate for nexial-topologic modelling: Taches café-au-lait... the archaic 'blemish'?***

Melanin pigmentation

*Symptoms:*

Skin: taches café au lait → freckles → neurofibromes (sub/cutaneous)

eyes - bone deformations (os longs) / scoliose - peripheral nerves tumours - hearing nerve (vestibulaire) (eyes: hamartomes iriens = nodules de Lisch = nodules on the iris)

Pain - learning disability

Vitamin D3 Topical application reduces pigmentation + suppress development of neurofibromas

N3- Developmental-genetic (Chromosome 17 - has a high rate of "spontaneous" mutations) + progressive - cancerous in nature - Determined by age 5

N2-Topographic distortions: sphenoid, to skin - Peripheral nerves. Substance blanche in brain.

Tache café au lait: Tache de naissance brune bénigne à bordures distinctes. Ces taches bénignes ont tendance à foncer avec l'exposition au soleil.

Tache de naissance: Pigmentation anormale présente dès la naissance (angiome plan, Naevus d'Ota, tache café au lait, etc.).

Tache de vin: Voir angiome plan.

Taches brunes: Voir lentigines, mélasma.

Tache de rousseur = lentigines

Classique "Grain de beauté"- acquis

## **Extracts F18 – Rules of localisation-extension in the literature**

Some formulations of the rules of nexial-topologic deployment exist already in the literature, but scattered in widely different fields, and in the form of explanations rather than imaging. They are usually reduced to puzzling observations with no clear rules. Described in the sciences as consequences of physical laws especially in general topographic distribution (see <Deployment of perspectives>), they are, in the human domain, viewed as limiting personal ‘projections’, collective-cultural ‘attributions’, or psycho-spiritual ‘expansion’ of Human reality. The rules themselves are noted by a very few, logic or cosmology minded. In scientific domain, they are formulated with respect to spatial localisation, and in philosophy, with respect to the extension of Reality, which both are the object of cultural periodic reformulation at long intervals in history. The following extracts are examples of such explanations. For example:

‘There have been many theories of relativity throughout history, from Aristarchus to Einstein, each representing a profound re-interpretation of our experiences.’ (Maths Pages-1)

The meaning of these quotations may appear difficult to grasp for a reader not familiar with the fields in which they appear, or with the origins and developments of ideas since ancient times and prehistory. An easier approach is to look at the underlying, geometrically imaged rules they formulate (see <PPT7 Three nexial-topologic rules>).

### **Localisation**

- [...] we may also see how easily men may fall into grave errors...such as believing that extension must be localized...that it occupies more space at one time than at another.’ (Spinoza 1901 p.30)
- ‘The ether of the general theory of relativity therefore differs from that of classical mechanics or the special theory of relativity respectively, in so far as it is not “absolute”, but is determined in its locally variable properties by ponderable matter.’ (Einstein in Saunders 1991 p.18)
- ‘Recall Ptolemy’s arguments against a moving Earth, or the 19th century belief that electromagnetism necessitated a luminiferous ether, or the early-20th century view that Einstein’s special relativity could never be reconciled with gravity. In each case a truly satisfactory resolution of the difficulties was eventually achieved not by discarding relativity, but by re-interpreting and extending it, thereby gaining a fuller understanding of its logical content and consequences.’ (Maths Pages-2)
- ‘Gravitational energy is non-local, which is to say that one cannot determine what the measure of this energy is by merely examining the curvature of space-time in limited regions. The energy – and therefore the mass – of a gravitational field refuses to be pinned down in any clear location. [...]These

are hints that our treasured intuitive views as to the nature of physical reality are less close to the truth than one would have thought...such conclusions must already be drawn on the basis of classical theory.' (Penrose in Saunders 1991 p.24-25)

- 'Now the only function of the universal *epoché* is to establish the *Residuum Thesis*, which holds that the realm of (empirical) consciousness is "absolute" in that it does not depend on the existence of an external, spatio-temporal world (cf. *Ideas*, sec. 51, 55).' (Husserl, quoted in Beyer 2004).
- 'If the laws of positioning could not be influenced by physical factors....., and were given once and for all, such an ether would have to be described as absolute (i.e. independent of the influence of any other object).' (Einstein in Saunders 1991 p.14)
- 'At present [1933] it appears that two other very general mathematical disciplines will be used increasingly in the future. One of them is the *theory of groups*; the other is *analysis situs*. In the latter we study only these characteristics of figures that are unaffected (invariant) by continuous deformation produced without tearing. Two structural points are relevant for us in this connection: namely that the analysis situs is fundamentally a *differential* and also an *ordinal* discipline, based on asymmetrical relations. In the next chapter, as an illustration of the actional, behaviouristic, functional operational, differential, contact method a short account will be given of the way Einstein structurally treated "simultaneity".' (Korzybski 1933 p.658)
- 'Under such *natural structural* conditions it is a fundamental fallacy to ascribe to "lengths" or "shapes" or "times" any "absolute" significance. ... "matter", "space", and "time" ... appear as relations between events and some specified observer, and forms of representations. [...] We would evaluate the[se] *terms* as forms of representation, and non-objects.' (Korzybski 1933 p.664)

### **Rule of 90° : Vertical Axis**

- 'Spectral lines are split when there is an external magnetic field, and are circularly polarized. The lines appear as doublets in the direction parallel to the field, and as triplets perpendicular to the field. Lorentz's (1895) explanation led to a spectroscopic determination of the charge to mass ratio of the electron ...' (Saunders & Brown 1991 p.41)
- 'That this subject [imaginary numbers] has hitherto been surrounded by mysterious obscurity, is to be attributed largely to an ill adapted notation. If, for example, +1, -1, and the square root of -1 had been called direct, inverse and lateral units, instead of positive, negative and imaginary (or even impossible), such an obscurity would have been out of the question.' {Quotations by Gauss}
- '[...] many states of experience are inherently complementary to one another, and in various pairs embody the same type of mutual uncertainty or trade-off in precision of specification as do conjugate physical quantities. A partial list of such consciousness conjugates might include: analysis/synthesis; observation/participation; structure/function; goal/process; responsibility/independence; reasoning/intuition' or most generically doing/being. Note that in each case the two properties cited are not polar opposites, but are orthogonal in the sense that the degree of each must be independently specified to localize the experience in that subspace. As with the physical conjugates, there are basic limits to such localization, and hence questions of balance or optimization: [...] excessive reductionism or attention to detail erodes the holistic or aesthetic appreciation, but excessively diffuse or excursive perspective leads to chaos in implementation; [...] Like many other aspects of the metaphor, this concept of a consciousness uncertainty principle or complementarity has also been suggested by many others...' (Jahn & Dunn 1986 p.752)
- 'We have described processes that occur in dying stars and the formation of new planets...Similar processes with no atomic disassociation are a part of everyday life; in fact, nowhere are such phenomena more complex and more intricately related than in biology. Above all, the concept of ether engages a distinction that becomes yet more central, and more profound: the distinction between fundamental and phenomenological law.' (Saunders & Brown 1991 p.61)

### **Rule of 180° : reversal, inversion; Rule of 360° : 'turned around', 'inside-out'**

- 'Mass: Rhetorical allusions to the concepts of inertial or gravitational mass in the affairs of consciousness are common... we refer to a thought or experience as "heavy".... In extreme cases, we



acknowledge that... [they] are capable of distorting our consciousness perception grid and contextual framework. [...] The role of consciousness mass in the establishment of anomalous experiences appears somewhat paradoxical. [...] the oft-claimed inexplicable acquisition of information in crisis situations suggest that we should look to the high mass or “grave” end of the consciousness spectrum... [...] The analogy of general relativity would also imply anomalous experience in densely massive situations. Yet there is a countervailing body of impressionistic evidence that just the reverse may be the case – that it is a carefree attitude of “high indifference” which frees the consciousness from its normal context. [...] In holistic health care, for example, the therapeutic value of levity in emotional and physiological healing is now being advocated. It may be that both of the extremes of gravity and levity facilitate some form of resonance between consciousness and its environment that engenders anomalous effects.’ (Jahn & Dunn 1986 p.757) (see also in <Extract F6\ Brain Central Control>)

See also <Extracts F13\ San Jiao & principle of inversion>, and Berlan (2001), Robinet in Cazenave (1998 p.161), Despeux & Obringer (1997).

### ***Primus Movers* ‘turned around’ as ‘wind’, ‘sea’, or ‘negative sea of energy’**

- ‘The other great difficulty..., a null result to second order in powers of  $v/c$  on the detection of “ether wind”. The absence of first-order effects –... was well known; ...*no* experiment sensitive only to effects of first order could detect the ether wind.’ (Saunders & Brown 1991 p.41)
- ‘We cannot say that the conventional theory is equivalent in all respects to the canonical second quantized theory with respect to the particle complex structure; this is true only for a limited class of global operators (which preserve particle number). In particular, the equivalence does not hold for local multiplicative operators, for these connect positive-and negative- frequency states. (They are “odd” operators...) [...] For these the RHS of (14), if considered a perturbation, would induce transitions from particle to anti-particle states, which would be a complete disaster.’ (Saunders 1991 p.100)
- ‘We may conclude that the negative-energy sea is what the particle vacuum looks like using the wrong notion of complex numbers (the natural complex structure). If the particle vacuum is to appear really empty, then we must use the particle complex structure at the Hilbert space level.’ (Saunders 1991 p.106)
- ‘The Dirac hole theory was developed in response to a growing crisis over the Dirac theory of the electron. It predicts the existence of antiparticles in a relativistic quantum theory; the antiparticle came into existence as a ‘hole’ in a sea of negative-energy particles.[...] the phenomenology, of pair creation and annihilation processes, the basic mechanisms of relativistic dynamics. [...] If this concept was initially tied to the negative-energy sea, that is not the case any longer. The negative-energy sea remains a widespread heuristic device to introduce antimatter. But nowadays no one would claim that the negative-energy sea actually exists; it is no longer taken as a literal description of the vacuum.’ (Saunders 1991 p.65) [Note: it exists in the human domain, as negative effects of resonance.]
- ‘The definition of the “preferred basis” (the class of projections) at each time, is the business of decoherence theory. [...] Evidently further pursuit of this question will require a much more systematic discussion of the criteria that motivate medium decoherence in the first place; it is clear that on any evolutionary approach to the specification of a decoherent history space, constraints on what is to count as an information processing system are also constraints on what can reasonably be understood as an “epistemic community”. In other words the objection must be ceded, but the epistemological contrast at issue is actually built into theory *ab initio*, as constraints on information transfer and stability; if we are to live in Plato’s cave, at least we can understand how it is that we are confined there.’ (Saunders 1995 p.26)

### **Human non-locality of ideas about covariance of vertical axis and activity**

- ‘Relativity theory, as the mathematical statement of the covariance of physical laws, was proposed simultaneously by Einstein and Poincaré, and it was anticipated by Lorentz. [Note 13:] ... this paper of [Woldemar] Voigt, which contained... the proof of covariance, remained unknown throughout this period.’ (Saunders & Brown 1991 p.42)

## Text extract F19 – Integral Inquiry

(Summary reproduced from Braud 1998 pp.256-258)

*'Synopses of five transpersonal approaches to research – Integral Inquiry*

*Essence:* The world of human beings and their experiences is multileveled and complex, and to provide a faithful account of that world, research approaches must be correspondingly multifaceted and pluralistic. In integral inquiry, the researcher explores a research question that has great meaning to the researcher and to the research participants. This, in itself, guarantees that the findings also will be salient, significant, and useful to readers of the research report (audience) and will help advance the knowledge base of the scholarly discipline in an important way. The nature of the research questions(s) determines the choice of the most suitable research methods. The researcher may choose from an array of conventional methods that have been optimised to address, respectively, four major types of research questions: (a) How might we describe, as fully and deeply as possible, the nature of a particular human experience, and how closely can we come to a sympathetic understanding of what it is like to have such an experience? (b) How might we conceptualize or explain that particular experience, historically or theoretically? (c) What are the developmental time course and "atmosphere" of that experience – that is, its occurrence, and what are its accompaniments, concomitants, or correlates? and (d) What are the consequences or outcomes of that particular experience – especially its important impacts on the life of the experiencer?

Table 3.1 of Chapter 3 [p.38 – see below] is helpful in selecting the most appropriate methods for exploring these types of questions. Next, the methods chosen may be expanded or extended to include alternative forms of knowing, alternative ways of working with the data, and alternative ways of expressing findings; these extensions may take place in the research participants or in the researcher. Examples include accessing and honoring one's tacit knowledge, bodily wisdom, emotions and feelings, intuitions, and direct knowing or paranormal access to otherwise inaccessible information; working with findings not only through the rational processing of ordinary waking consciousness but also through other representations and modes (eg, imagery, proprioception, and direct apprehensions) that may occur more readily in nonordinary states of consciousness (eg, meditative states and hypnoidal states); and expressing findings not only in linear prose but via alternative communication styles such as stories, nonverbal presentation, artwork, poetry, metaphor, myths, or symbolic modes. Reader-interactive modes of data presentation are also possible (eg presenting certain raw data to the reader along with instruction for working with the information in certain consciousness states and developing interactive information CD-ROM presentation of all major steps of the research project).

Important places are given to processes of internationality at all phases of the research:

(a) being informed by information from a vast array of sources (not only current professional literature of the discipline but also older and more tangential literature, information and approaches from other disciplines, spiritual and wisdom traditions, and one's transpersonal sources – eg dreams, intuitions, exceptional experiences, synchronicities and inner guidance); (b) questioning assumptions, identifying hidden assumptions, and turning assumptions on their heads; (c) considering a variety of validity indicators; and (d) expecting and valuing the research project's ability to help change or transform the research participants, the researcher, the reader (audience), the professional discipline, and society at large.

*Strengths:* The approach permits extensive and intensive studies of a topic; allows understandings from a variety of perspectives to emerge; recognizes and honors alternative forms of knowing, doing, and being; promotes change and transformation in all persons involved in or touched by a research project; and helps dissolve the usual artificial boundaries between research, clinical, and other practical applications, and personal and transpersonal growth and development. There is a strong emphasis on appreciating complements, transcending apparent dichotomies and contradictions, tolerance for ambiguity, and ability to live with and comfortably hold paradoxes.

*Weaknesses:* Because integral inquiry can be so broad, there is the danger of attempting to do too many different things and thus dilute the quality and depth of particular aspects of the research. Adequate practice of the methods requires extensive and intensive experience and preparation of the researcher, along with familiarity and sensitivity to many modes of knowing and alternative ways of being in the world.

*Illustration:* What can a plurality of research approaches and personal experiences tell us about the nature and meaning of psychic experiences? (Braud, 1994a, 1994c).

*Resources:* Schumacher (1978), Smith (1976, 1992).

*References:*

Braud, W.G. 1994a, 'Can our intentions interact directly with the physical world?', in *European Journal of Parapsychology*, no.10, p.78-90.

Braud, W.G. 1994b, 'Honoring our natural experiences', in *Journal of the American Society for Psychological Research*, vol.88, no.3, pp.293-308.

Braud, W.G. 1994c. 'Reaching for consciousness: Expansions and complement', in *Journal of the American Society for Psychological Research*, vol.88, no.3, pp.185-206.

Schumacher, E.F. ,1978, *A guide for the perplexed*, Harper & Row, New York, NY.

Smith, H., 1976, *Forgotten truth: The primordial tradition*, Harper & Row, New York, NY.

Smith, H., 1992, *Beyond the post-modern mind*, Quest/Theosophical Publishing House, Wheaton, IL.

Table 3.1( in Braud & Anderson 1998, chapter 3, p.38):

**Conventional disciplined inquiry methods that closely match four major types of research questions**

Continuum			
Qualitative Idiographic (Understand)	(Explain)	(Predict)	Quantitative Nomothetic (Control)
<b>Qualitative Methods</b>			<b>Quantitative Methods</b>
EXPERIENCE What is the experience of x? How is x perceived by the participant?	CONCEPTUALIZATION How can we conceptualize x? What are useful explanations or interpretations of x?	PROCESS How does x unfold as a process? What are the concomitants of x? What sets the stage for the occurrence of x? What facilitates x ? What inhibits x ?	FRUITS What are the outcomes, consequences, 'fruits' of x?
Phenomenological Heuristic Narrative Life stories Case studies Feminist approaches Organic approach Interview Questionnaires Surveys	Theoretical Historical Grounded theory Textual analysis Discourse analysis Hermeneutic	Correlational Causal-comparative Field studies	Experimental Quasi-experimental Single-subject Action research

## Extracts F20 – Published ‘Exceptional Experiences’

### ***Saint Teresa of Avila (1588AD)***

Saint Teresa of Avila recounted in her biography a nightmarish vision related to water, that her confessors had her interpret as a visit to a future hell:

'...when I found myself in a moment, without knowing how, plunged apparently into hell ...The ground seemed to be saturated with water, mere mud, exceedingly foul, sending forth pestilential odours, and covered with loathsome vermin...I felt a fire in my soul... I have undergone most painful sufferings in this life, and, as the physicians say, the greatest that can be borne, such as the contraction of my sinews when I was paralysed...I felt myself on fire, and torn to pieces... I could neither sit nor lie down... I could not breathe. There was no light, but all was thick darkness.... our Lord made me really feel these torments, and that anguish of spirit, just as if I had been suffering them in the body there.'

'Suffering them in the body there' corresponds to a 'here-now' sensation of attrition. Teresa's description is striking because of her condition of systemic degeneration (and one would assume systemic, chronic, low-grade infections) at the time of her visionary experience. The term 'ground' befits a general mood of 'loosing ground' in life, and specifically fits the 'ground substance' connective tissue losing its integrity and springing quality.' (Teresa of Avilla 1588)

### ***Alfred Tomatis (1991)***

'What happened? I do not know how to describe it exactly....At this moment I was, nearly asleep. Afterwards they told me that I had abruptly ceased to be present except for my body which had become completely immobile. During this time I had the impression of plunging deep down a mineshaft, strapped in the compulsory protective clothing of such a situation. I moved with dizzying speed toward the center of the earth. A thousand meters! Two thousand meters! Before my open but fixed and lack-lustre eyes the tangle of geological strata formed crazy images where I soon recognized scenes of hallucinations, replays as it were of all the challenges which had been put before me in the course of my life, no doubt to gauge the resistance of the material. On the surface of this vast composite image floated, first of all, a representation of the problem which had just arisen unexpectedly at the heart of our home life. [...] Next other difficulties appeared [...] time lived ...beyond ordinary norms [...] sad or painful [...] My experience as a human unrolled... shadows... I engaged in hand to hand combat ... darkness... Now I crossed layers of mud...and I experienced a certain sense of vertigo. [...] I got further and further from my body all the time unaware of any great regret since I remained in permanent touch with it. My speed continued to increase until it seemed to me that the final threshold must soon come, beyond which, after time had been abolished, space itself would sink exhausted. Suddenly in the obscurity, which swaddled me in a layer of blackness thick enough to fill me with mortal agony, I saw a sparkling light...an exultant joy took hold of me...A blazing light was the only thing I could see. This time I was caught in an upward movement [...] I understood at a single stroke that it was this light which had seized me. [...] A voice said to me while I was being reunited with my body. "Your mission is not finished, old friend, you must go on". I recognized my own voice and then opened my eyes. An oxygen mask was on my face...and then an ambulance ride...my wife believed me dead and in fact she was not mistaken. For a certain length of time, all my vital functions had ceased...At last I was able to obtain rest and sleep. [...] The medical diagnosis attached to this incident read "Neuro-vegetative-collapse" [...] descent into the abyss...Death ...that which we call by this name is only the last flight that lifts us up.' (Tomatis 1991 pp.194,195,197)

### ***Julian Jaynes (2000)***

'In my late twenties, ...I had for about a week been studying and autistically pondering some of the problems in this book [...] One afternoon I lay down in intellectual despair on a couch. Suddenly, out

of an absolute quiet there came a firm, distinct loud voice from my upper right which said "Include the knower in the known!" It lugged me to my feet absurdly exclaiming, "Hello?" looking for whoever was in the room. The voice had had an exact location. No one was there!...I do not take this nebulous profundity as divinely inspired, but I do think that it is similar to what was heard by those who have in the past claimed such special selection. (Jaynes 2000 p.86 – see p.87-93)

'In schizophrenia[...] In some cases, particularly the most serious, the voices are not localized. But usually they are...In some patients there is a tendency to associate the good consoling voices with the upper right, while bad voices come from below and to the left. (Jaynes 2000 pp.88,89,90)

'If we are correct in assuming that schizophrenic hallucinations are similar to the guidances of gods in antiquity, then there should be some common physiological instigation in both instances. This, I suggest is simply stress. In normal people, we have mentioned, the stress threshold for release of hallucinations is extremely high [...] This is caused, I think, by the buildup in the blood of breakdown products of stress-produced adrenaline which the individual is, for genetical reasons, unable to pass through the kidneys as fast as a normal person' (Jaynes 2000 p.93)

'If two monkeys are placed in harness, in such a way that one of the monkeys can press a bar at least once every twenty seconds to avoid a periodic shock to both monkeys's feet, within three or four weeks the decision-making monkey will have [executive] ulcers, while the other, equally shocked monkey will not. [...] So Achilles, ... in decision-stress ... The divine voice ends the decision stress. (Jaynes 2000 p.94)

'The Origin of Auditory Hallucinations – That there is a problem here comes from the very fact of their undoubted existence in the contemporary world, and their inferred existence in the bicameral period. The most plausible hypothesis is that verbal hallucinations were a side-effect of language comprehension which evolved by natural selection as a method of behavioral control. Let us consider a man commanded by himself or his chief to... If he is not conscious, and cannot therefore narratize the situation and so hold his analog "I" in a spatialized time... how does he do it? [...] A Middle Pleistocene man would forget what he was doing. But lingual man would have language to remind him...If one is facing directly and conscientiously the problem of tracing out the development of human mentality, such suggestions are necessary and important, even though we cannot at the present time think how we can substantiate them. Behavior more closely based on aptic structures (or, in an older terminology, more "instinctive") needs no temporal priming. But learned activities with no consummatory closure do ne to be maintained by something outside of themselves.' (Jaynes 2000 p.135)

### **Lawrence Edwards (2000)**

'I felt myself descending through space... sky began to fill with dark...the wind picking up... oppressive feeling... pressing evil power... cracks in the boundary of my selfhood...

couldn't even allow myself to feel or sense in any way that I was in a battle or struggle for survival... this took all my powers of concentration and all my energy... finally a degree of steadiness in my awareness of the self and I relaxed... must go back... prepared to descend... to return... shut out awareness of everything but the Light of the Self... expanded the sphere... like an expanding cloud of Light, which at first was fairly small... the struggle was an illusion... my mind felt clear and strong but my body was weak and shaky...couldn't let that power remain loose on the face of the earth... power of being established in self-awareness... tornado... vortex of wind struck the building... and all its whirling movement ceased... In that instant a blast of wind came through the window, hitting me full body... energy had entered me... dark ball of energy... '(Edwards 2000 pp.210-214)

'The Shakti (goddess, life energy) directed me to write down all that I had experienced and see that it was published, making it available to everyone. Having the Shakti speak to me from within and give me specific directions].... She said it was very important for the knowledge... to become more widely known.' (Edwards 2000 p 39)

'As I sank into meditation I found myself descending through space and time, as if from high above the earth... northern sea... I'm going in search of the mysterious lands beyond the vast oceans far to the south... land beyond turmoil, beyond time. I'm going to find that place... constantly changing colours... boundary... began to dissolve... mountain pass... did more mountains lie ahead?...'. (Edwards 2000 p.42-54 and exegesis pp.54-86)