Zen & the Art-ifice of Ingenuity

Zen and the Art♦ific e of Ingenuity: An action research report (2001-2008) into the practice and prospectivity of the Bioneering Artificer/Bush Mechanic (Australian term) in the process of using Exemplar System Development (ESD) for a better world.

Key Words: Androgogy, Pedagogy, Exemplar Systems Development, Experiential and Action Learning, Vocational Education, Adult and Community Learning, Artificer, Bush Mechanic, Social Ecology, Social Anthropology, Ecosophy, Bioneering

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BMARP1: Link 1 in the Artificer/Bush Mechanic Action Research Program

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Colour Scheme: Chapter headings, Definitions, key generative concepts, key concept that the argument is moving away from or positing an alternative to, summary of a key concept inc. Appendicies Where other chapters are referred to Chapter References Author's/Reader's Note (10 of @ 10-02-2008)

Other Volumes in the series:
Vol 1 - the Artificer: Here we look at ground zero the agent in our exploration of this sociological phenomenon that braids thinking and doing - this document
Vol 2 - the Systems: Here we look at the vertical (skill sets/Voc Ed) and horizontal (consciousness, ontology, and epistemology) systems wherein the Artificer lives works plays learns and has her being - in development
Vol 3 - the Workbooks: Here we workshop the critical aspects of the first two volumes i.e. the Artificer and the Systems viz. Artificer as Bush Mechanic and Systems as Exemplar Systems Development - in development

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Disclaimer

This e-book makes no claims about its own importance. It does however claim to point to an important topic. Further it does not claim to be philosophical or anthropological or pedagogical or androgogical, or sociological or phenomenological and so forth. Even more so it makes no claim to even be academic. Yet it draws from and respects all these traditions. Yet today they alone are no longer enough. Today we need practical syntheses across boundaries, through interfaces, and into disciplines. In sort we need academic transdisciplinary even holon-disciplinary artificers.

Over a publishing career starting in the mid 1970's I have published some 170 documents individually and jointly, including several books and four CDRoms and at last 160 articles many refereed and many others in the grey literature. Further I have been an academic and senior bureaucrat and now for the past decade a Director in a small Learning Development company for kids and adults which, has led to my undertaking this artificer/bush mechanic project over the 6 year period to 2007.

These are, let me assure my dear reader, hoops I have well and truly jumped through and I see no need for myself or you for that matter, to have to do this at this juncture or in the future to prove your 'worth'.

Thank Gaia for the web!!

The principal reasons for this 'go it alone' view are:

1. Academia's inverted passivity, co-existing with massive intuitionalism, persuasive internal specialisation, oppressively hierarchical structure and obsessive textualisation wherein its main role today is simply reinscribing the status quo whether they end up helping or hindering global peace. And many of the good guys with heaps of 'education' end up on the wrong side. Importantly textuality with the alphabet is yet a further step removed from what is out there, or even in here, as recorded the worlds pictographic or ideographic representational systems respectively

2. These various specialisations as disciplines are like brick bunkers that stop people looking or thinking outside. As Fred Emery used to say 'in primary school we blind the kids and in Uni we poke their eyes out'. He even suggested we build the windows just about head height to ensure academics eventually forget to look out we just give up but there is an outside life world and there are other disciplines

3. Further these various disciplines are like lenses in glasses that change the terrain to suit the disciplines theories/categories - reviews from this perspective always result in the new (transdisciplinary, grounded, local theory etc. all of which apply to this work) being forced into disciplinary straight-jackets/bunkers which don't fit. Over the years I have seen this time and time again with colleagues and my own work. In brief the conventional editing system can however the referring system simply doesn't and cant work in the context of the web generated changes in knowledge generation, distribution and access.

4. There are now many more times the amount of knowledge and expertise outside Universities than within. They retain their pre-eminent position in society because they jealously guard their monopoly i.e. 'the right to credential'. The impact of the web on libraries has been seen over the past generation, now the institution itself is under challenge.

In this e-book I draw from many authors who I reference. As a labour of love this book is not designed to make money it is simply a major project aimed at offering one way to enhance the value of vocational (and other) education. Should I have left out or misquoted a reference, or need more accurately to quote the particular author, or have paraphrased without attribution please let me know and I will remedy it in the next version. This way readers/we can, via. email and the blog, do a wiki on the bushi (no relation to sushi).

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Introduction

In this e-book we start from the perspective practical example and work backwards to the more theoretic dimensions of the topic. A topic whose perspective steps aside from the conventional status quo of the scientific separation of mind and matter of thinking and doing, and draws from an ontological position of the inescapable condition of human beings' engagement in the world, an example of process and project that foregrounds the performative and poiesis aspects of tool-use that have been marginalised by rationalism. In so doing I attempt, in some small way, to recover that meaning which has been lost through our disengagement from the current of practical action in our lived lives. We start the journey by introjecting into the 'real world' of our everyday lives a person who represents this recovery, who may be said to start from this fundamentally different ontological position - the artificer or bush mechanic.

Often treatises on learning, especially Vocational Education, see two options (1**) the instrumental**/algorithmic/doing - where the 'real world' is becoming part of the machine, very much part and parcel of Voc Ed today and (2) **the abstract** - academic/intellectual/ thinking - where the 'real world' is becoming part of the 'academe', where crucial thinking and tradesperson as citizen can be developed (yet little if anything practical). In this e-book I argue that (1) and (2) are simply dualistic mirror images of one another within the scientific machine. Here I strongly argue for a third option, the path of (3) **the heuristic** i.e. that of the Artificer where doing and thinking are authentically integrated through this lived life.

As the title to this research project/e-book report suggests we are on a quest to design an ideal androgocial learning process. Herein we explore the zen of the artificer. As part of this quest we also explore four distinct meanings for understanding the term Artificer known in common parlance in Australia as Bush Mechanic viz. someone who:
- Generates exemplar projects, to demonstrate a better world is possible, by way of ingenuity, or
- Sees ingenuity as a thing in itself, a process created by an artificer forming exemplar projects, or
- Becomes a Bush Mechanic/Artificer through the innate process of human development and empowerment (usually involving mentoring by another Artificer)
- Stands aside from conventional wisdom and starts from somewhere different, somewhere at once blazingly forward looking and also strongly linked to the past. Somewhere, someone, someprocess of active innovation which demonstrate in today's technologised world the unity in thinking and doing.

Research Questions

Although touching on all three this e-book focuses on these questions and asks the research questions –
> (1) *What are the design elements of an ideal androgogical learning process?* In turn this leads to the second research question,
> (2) *What is an example of such a learning process today?* And its corollary,
> (3) *Wither the Artificer/Bush Mechanic? i.e. to explore the what, when, where, why and how of the Artificer, in a way that queries contemporary, retrospective and prospective credentials.* Primarily this research project does this by using Grounded Theory to identify the key aspects/descriptors/principles associated with being an Artificer.
> (4) Given that by evolution the human animal is a generalist not a specialist. We have no fangs claws or venom built into our bodies - instead we have tools, weapons, clothing and watercraft. All of these are wrapped up in cultures and cultures adapt

more quickly than genes. *What then are the attributes of such cultures that can facilitate this generalist-specialist learning?* Wright (2004:29)

Origins of this e-Book

The e-book had its genesis in 2001 when I sought to outline what, for me, would be an ideal learning process. After spending many years as a senior bureaucrat in the Vocational Education field, several as an academic and in the vocational education field and now starting up my own business in the Adult and Kids learning fields, jointly with my wife, I simply had to answer a gnawing feeling that there is something profoundly askew in conventional pedagogy, which seems to be robotising and textualising learners and literally consuming any semblance of authenticity in the Adult and Community Education arena. The area where this problem seems most evident, and has the greatest potential for redressing, is for me Vocational Education.

My life has been profoundly affected by people whom many would call Artificers from a disabled plumber father, to backyard genius who helped fix the unfixable motor to a friend whom I help build my boat over a two and half year period. The latter was a deliberate attempt on the cusp of retirement or protirement as I prefer to call it, from 2004-mid 2006 to experience what it was like to undertake an Artificer's exemplar project and to work with an extraordinary Artificer to do it. I remain convinced there is a respective wisdom and prospective potential in this form of pedagogical androgogy.

Much of this work is profoundly left field and as such will not pay adequate attention to various literature streams which if it did would not be able to make, for whatever that is worth, lateral and innovative observations and conclusions so necessary to problematise a whole field of endeavour viz. pedagogy itself.

In this work I am indebted to many authors and in several instances I have not been able to do better than paraphrase them – in all instances I quote the source, however a strict and narrow reading of the academic lore could see this as plagiarism. Furthermore this work is not directed at promoting me or generating a profit rather to raise the issues in ways that can lead to more learned and expert minds than mine to carry on the task.

I ask the reader please to be at least a little understanding towards my various neologisms. These I believe were warranted as Artificer Learning represents even a new pedagogy yet one that in part at least was of ancient times now just fragments remain.

Situating the Bush Mechanic as Post-Post-Modern Artificer and this e-Book within the key transformations called forth by the Global Problematique

If we step back a few steps from the task at hand and behold the tragic mess that we see all around us today in the global problematique. In the environment, social declension, violence and war, poverty and we ask ourselves ~ what are some of the key markers of a positive response (I hesitate to use the word 'solution' for obvious reasons? Some of 'T'he key responses/transformations that are required to the above 'mess' as represented in 'kitch retro movies' such as 'Inconvenient Truth' and '11th Hour' include: (retro in the sense that now even ex vice presidents and movie stars are making movies about what the perceptive of us have known for a generation).

1. Stepping outside the globalised world economy while localising food production, exchange, currency, training and employment
2. Developing a frugality of use in line with the original meaning of 'economics' 'reuse' not only 'recycle' economy in place of our existing 'one use' and planned obsolescence consumerist economy. This means changing how we 'do' stuff viz.

changing 'manufacture' to 'making' of things so that sustainability is built in local reuse can occur

3. Building on the increasing post-industrialisation in the West. **Artificer or Bush Mechanic in this sense in this eBook is used more as a decision making and action taking heuristic in a post-knowledge age economy than a mechanistic algorithm harking back to an industrial age economy**

4. Here we ask and answer the questions '*Where is the wisdom lost in knowledge? And; where is the knowledge lost in information?*' So the artificer is an expression of ageless human wisdom about acting ahead wisely in a post knowledge age economy, rather than a gadget driven tech head nurd of today's instant fix generation or a back to Eden type effort to reclaim our lost pre-industrial age of innocence.

5. Activating a flexibility and innovation in our responses to the above challenges and one in which we are all encouraged to apply our ingenuity

6. That we all participate ~ 'no about me without me'

7. Fundamentally restructuring how we learn so that we all can participate in the practical solution to do this we must link thinking and doing at local levels as it is schools are part of the problem not part of the solution

8. Locating humanity within 'N'ature not as separate to and with dominion there over that is a participatory consciousness

These aren't the only solutions; others include of course:

9. Authentic governance
10. Retiring the nation state
11. Commit to reducing profligate consumption in the North and poverty in the South inc. AIDS
12. Retiring third world debt
13. Management strategies for ecology diversity and enhancement
14. Non killing politics and alternatives to war
15. Transforming democracy towards global governance.

Clearly this is a big ask of the humble garden variety 'bushy' yet we need to ask ourselves how can something as humble as the local Artificer or glocal artificer be any help at all? For instance today in our globalised world skills are often thought of as instrumental i.e. as narrow (one limited set), highly differentiated, shallow (performative) and simplex (involved in discharge the particular 'skill' behaviour not in the design of the system in which the behaviour is required) whereas the artificers skill is broad (interfacing several related skill sets/trades), substantive as it involves making 'good' products in ethical ways, deep (involving design), integrative or synthetical in that it seeks to harmonise the different skill sets in a sort of constructors harmony or 'exemplar project' and complex in that they seek to establish an exemplar that can operate in today's turbulent world inc. meeting the customers needs. These positions are basically at opposite ends of the skill spectrum and let me tell you the artificer is not on the winning end.

This e-Book is devoted to answering this question and in so doing we will be able to situate or locate the Artificer in today's Zeitgeist. So easily dismissed as instrumental not substantiative, local and particular not able to provide enough centres of change for critical mass, provincial not cosmopolitan, primitive not modern, hobbyist not professionalist, Neolithic not Modern, archaic and pitiful rather than futurist and exemplar, dodgy not genuine, not legal and often not formally qualified, atavistic not progressive, of use only after the economic collapse not up to speed with the needs of today's Zeitgeist with Global warming and the other demarkers of the mess as listed above.

The Artificer simply doesn't fit in today's modern world - or does (s)he? To find out we need to reprise the role of the local - and urgently, thus this e-Book. Maybe it is in the detritus of modernity that we need to look for answers those cast aside to the periphery by modernity itself those whose voice is no longer valorised, no longer accepted, no longer even heard.

Well reprise her we can in at least 6 of these 12 required transformations. (1 to 6 above). We often overlook how profound the humble contribution of the ordinary citizen in their own home in their own economy can be and who says 'enough is enough ~ I can do stuff'. The Artificer and this e-book is a humble tribute to these small efforts with global implications truly the art of ingenuity.

As my research continued from 2000 towards 2010, I became saddened then slightly and increasingly and deeply angry and disturbed by the essential relevance of the Artificer as a signifier of the human spirit and the gap to its position in our modernity based culture today. This lacuna is evident everywhere from friends dismissive attitude to the topic, concept and ultimately even to the book itself, from the lack of purchase of the concept in the 'modern' education system that separates thinking and doing so tectonically, from colleagues in the futures field who really should have known better and from philosophers who see the idea as instrumental (at best strategic) not substantive /normative. Such lacuna shows itself in our pejoratising or primitivising of the archaic (for instance the commonly held view that science started with the Greeks 2,500 years ago). The artificer is nothing short of a tectonic cultural blind-spot an extirpation of an absolutely foundational element of our humanity from our history and utterly from our science. This eBook then is a belated and somewhat rambling effort to reinstate the Sauvage dimension in our life - explored in detail in Ch8.

So in terms of the 'human touch' or 'high tech ~ high touch' Post-Post-Modern Artificer as explicated in this eBook, we may well in a Zen sense that we discover eternity in the detritus the moment of the eternal return to what is truly human.

Part I - IDENTIFING, DOCUMENTING AND EXPLORING THE CONCEPTS

Chapter 1 - Background

A working definition of an Artificer/Bush Mechanic

An Artificer/Bush Mechanic is defined for the purposes of this research project report as:

Artificer/Bush Mechanic in the narrow sense is *'someone who uses their ingenuity and technical knowledge to improvise unique solutions to field challenges'*.

This narrow sense is where the e-book starts and then drills down into and across this definition, as was the intent and extent of this e-book over the 5 years of its compilation. It is possible to see deeper and broader meanings behind the commonly understood characteristics of the Artificer, echoes of the past as well as harbingers of a possible future. It has been the intent of this research project as recorded in this e-book to explicate these broader characteristics while at all times remaining true to the vernacular narrow or street-cred definition.

Artificer/Bush Mechanic in the broader and deeper sense as used in this e-book is *'an adult learner who is broadly and deeply technically skilled both in a participative and reflexively orientated manners with normative (ethically) and instrumental (technical-strategic) capabilities and who seeks to address key dimensions of the global problematique through exemplar prototypes by prioritisation, choice, design and implementation all aimed at acting ahead wisely towards a world transformed'*.

Artificer/Bush Mechanic[1] **in the broader and deeper sense** as used in this e-book is *'an adult learner who is broadly*[2] *and deeply*[3] *technically skilled both in a participative and reflexively orientated manners with normative (ethically) and instrumental (technical-strategic) capabilities and who seeks to address key dimensions of the global problematique through exemplar*[4] *prototypes*[5] *by prioritisation*[6], *choice, design and implementation*[7] *all aimed at acting*[8] *ahead wisely*[9] *towards a world transformed*[10]*'*.
[Wildman (2004c:1) updated Wildman (2007) - this document, see also Wildman (2005a, b, c, d)]

Bush Mechanic as Artificer Learner then is and adult learner setting out to learn from their particular Artificer process, he or she may or may not be formally trained however formal training is not designed to help the bushie who needs vertical skills (idea design implementation) and vertical skills (linking various related expertise areas) e.g. farmer (seed husbandry, tractor maintenance, shed building, farm managing and so forth). Conventional training is designed to 'teach' one more and more about less and less so to speak and even worse in tertiary situations is generally textually not experientially based. The bushy then generally develops conjointly with the prototype with broad and deep integrated skill set as the basis of survival.

Joy as in self-realisation is experienced by the Artificer not only *because of* the realisation of a potential (both for herself and the material she is working with), but also joy is part of the very process of its realisation in the prototype exemplar project and thence in the use of the exemplar project - a personal eudemonia, or human flourishing, in short a wider sense of self. By virtue of this widened self, people will engage in what Kant called 'beautiful' actions, not merely dutiful, rote or uncritical ones.

[1] **Bush** in this sense means **informal, self taught polymath** or polyhistor, **largely outside conventional categories of the culture.** From a Western it means e.g. step after artisan whereby the artisan becomes

directly involved in **design and learns associated/related skill sets** such as plumbing and carpentry (these horizontally aggregated skill sets are not recognised in the West however are relatively standard in indigenous non Western cultures), thus becoming an Artificer. And from a non-Western technocratic background e.g. **indigenous** groups/tribes/cultures it means the **ways they adapt and adopt Western technologies to their own ontology**. In both senses it means also circumstances where the *artifice of ingenuity* is strongly called for. **Mechanic~al** can have several connotations and meanings: (1) **conventional mechanics** as in machine; (2) **post-mechanical** reproduction as the precession of simulacra, a **post**-World War II state of hyper-reality in a post-industrial world; (3) **celestial mechanics** as in the music of the orbs; (4) **Kinetic art mechanics** as above; (5) **Industrial Art** as in the shape and blending of form and function say in a boat trailer; (6) **Mechanical techne** - more the meaning of mechanics pre Industrial Revolution inc. for instance apprenticeship & journeyman's piece/exemplar project; (7) an **approach to learning and teaching** that is structured as a project-based context-driven inquiry; (8) **Mechanical as a heuristic** driven rather than only algorithmic permutations and combinations that also relate to (9) **bio-mechanical** and **evolvo-mechanical** (evolution); (10) **an operation of our bodies** that relate to muscles and tendons and neuro-mechanical movement inc. and especially the hand that is a profoundly human characteristic and thus (11) a profound linking even **braiding of thinking and doing**; (12) something we all participate in that the mechanical as used in this eBook is simultaneously universal, non-local and local - species in the sense of conventional evolution and parallel evolution in the sense of **Quantum Mechanics** and individual so there is a **collective participation or even egalitarian potential** in the term.

This eBook uses the term 'mechanical' in all the above senses however in the book itself I seek to differentiate these uses for instance - **prototype** - in the sense of : prototype/exemplar project w.r.t (1), (6) & (8); **post modern critique** w.r.t (2); **Artificer learning** w.r.t (7), (11) & (12); in linking with **indigenous & mythic perspectives** that integrated mechanics and art and ceremony and myth w.r.t (3); in relation to GNR - **Genetics, Nanotechnology & Robotics** revolution & the emergence of other forms of life w.r.t (9); & finally w.r.t **community governance** (12).

Here the term mechanics is used to relate to the vernacular every day life of humans in enviro so to speak. There are levels of where this does not function such as macro galactical and micro material i.e. at the purely quantum levels. For example the Hitchhikers guide to the universe and its ansible travels and quantum computer suggest that the quantum may well be an hypostasis for the vernacular world, and thus the quantum mechanic can become a maker of worlds. This however is well outside the scope of this eBook. This is not to suggest that these other levels/layers of being or existence don't 'exist' but rather that for this eBook the vernacular is the point of equilibration, integration, lens, perspective or axis mundi of social action with which we use to see and seek to change the world - problematic yes ~ provendural yes ~ perspectival yes.

The key in all these is that mechanical relates to intentionality as manifest in the physiospheric realm of manifest form w.r.t (10) there cannot in this sense be exclusively ideational i.e. noospheric/ intentional mechanics rather we have to *walk our talk* and *talk our walk* not just *talk the talk* & for the Artificer this is manifest thorough the exemplar project. Thus this meaning and importance of the 'mechanic' as concretising concept for our post modern culture is hard to grasp as it seeks to shoot arrows at the rainbow and transcend reactively and proactively our modernity distinction between thinking and doing.

The mechanical here is **not** that in the traditional conceptualisation of 'mechanical philosophy' as the universe as exclusively mechanistic or even dualistic as in mater V's mind with the former being purely mechanical and excluding intentionally or psychality and the latter being superior and relating to God in the Platonic sense, nor is it that evident in 'analytical philosophy', organic rather than materialist. . Further as argued elsewhere in this eBook the philosophic basis for the concept 'mechanic' herein tends not to reinforce the view that reality is completely inter-subjective (and thus reality is 'in here')and thus hermeneutic nor is it critical as such the concept does presuppose a, even empiric, reality that is to a significant extent 'out there' which can be acted on through human agency, structure and design to produce efficacious outcomes.

*2 Technically **broadly** means whole project praxis as well as horizontal trades type skill arenas – **vertical skills integration/interface** of consciousness, as in artisan supremely skilled at a particular skill set – conventional educational path, particularly in the social sciences, such as degree, masters, doctorate represent progressively more abstract, theoretic, noospheric and focused knowledge on a smaller and smaller topic the anthesis of an artificer practique path. There are mechanics as mechanisms in the universe, mechanics of many degrees of consciousness and power. A practical polymath - A **polymath** (also known as a **polyhistor**) is a person who excels in multiple fields, **horizontal skill set integration/interface**, particularly in both arts and sciences. The most common other term for this phenomenon is **Renaissance man**, but also in use are **Homo universalis** and **Uomo Universale**, which in Latin and Italian, respectively, translate as 'Universal Man'. (NB In Latin *homo* may be male or female, the Latin word for a male human being *vir*.) Many notable polymaths lived during the European Renaissance period, and a rounded approach to education was typical of the ideals of the humanists of the time. A gentleman or courtier of that era was expected to speak several languages, play a musical instrument, write poetry and so on, thus fulfilling the Renaissance ideal. During the Renaissance, Baldassare Castiglione, in his The Book of the Courtier, wrote a guide to being a polymath. On the other hand 'polymath' may be applied more strictly, taking Leonardo da Vinci or Goethe as prime examples, and requiring a universality of approach. A polymath may not necessarily be classed as a genius, which is a more debatable classification; and certainly a genius may not display the breadth to qualify as a polymath. Albert Einstein is a prime example of a man generally regarded as a 'genius' who was not a polymath. http://www.reference.com/browse/wiki/List_of_polymaths for a list of polymaths.

*3 **Deeply** means **vertically** (as well as horizontal) in that the Artificer can participate in the consciousness of the design that is in the overall design process as well as understanding its origin, inception, conception, fabrication and reception i.e. use

*2, *3 In effect **Systems Thinking and Acting** which may be characterised by: (1) identifying the major parts which comprise the whole; (2) understanding the relationships between the parts; (3) feedback between the parts that are facilitated by the relationships. The relationships are usually complex so that a small perturbation in one part of the system can lead to large, unpredictable changes throughout the system, (4) the system's unique emergent properties which are more than just the sum of the individual parts which make up the system; and that, (5) recognises that changes to one part of the system will affect the rest of the system while changes to the system will affect every part in the system through defined relationships.

*4 Exemplars: NB: these categories and examples are illustrative only and overlap and double counting can and do occur. Each exemplar has to (1) integrate the idea and the reality with practicality and (2) respond publicly/overtly/transparently and accountably, to (3) the four key grounded theory categories to (4) a group of peers, in a way that (5) demonstrates today that a better world is possible tomorrow for our children:

. **Artisan** - (arts) – painting, sculpture etc., (craft) – the step after artisan is artificer's project e.g. making a boat, building a house, chef masterpiece for an exemplar celebration, seamstress making peace vests, needlework etc.

. **Death and Dying** – building and opening and operating a hospice for the old and dying

. **Justice** – the valid upholding of social justice legislation

. **Lighthouse** – Ecovillage, moon landing in 1969

. **Peace** – the results after a year of a Peace Corps involvement in a conflict situation.

. **Portal** – pyramids – portal to an afterlife for the person buried

. **Innovatory** – proof of concept, best in class, social innovation, technological innovation

. **Moral** – the practice of non killing politics of integrity, see also Touchstone

. **Scientific** – cure for cancer, polio vaccine etc

. **Social** - exemplar such the results of sociocracy applied to an organisation, social and governance innovation

. **Touchstone** – Life of Christ for instance (the crucifixion), Ghandi (the salt march), Martin Luther (1963 march on Washington), Nelson Mandela (the repeal of apartheid in South Africa), the 10 commandments written on stone,

. **Transcendental** – Stargate, some would argue the art outcomes of taking drugs, the outcomes of the life one leads from meditation

*5 Prototypes are physical/physiospheric structures can be seen as concretised scenarios and as in exemplar projects/case studies which, incorporate the artificers integrity with the broader systems ethics embedded in the problematique. These prototypes counterpoint Rube Goldberg contraptions which seek elegant efficacious simplicity; nevertheless both may be considered forms of 'kinetic art/sculpture' which however in its more pure sense KA relates to non-motorised art where power is supplied naturally by wind or water or by the human arm for instance e.g. water (fountains), baby's mobiles (wind), bicycles (leg), burning man (fire) and also rolling ball machines, mobiles, stabiles, and suspended magnetic sculptures etc. **** is aware of the 'big picture' as in global problematique and seeks to prioritise her actions there from

*6 Prioritisation -the ability to choose among various exemplar options in a public and defensible manner

*7 Implementation: thinking and doing braided through designing and enacting – frequently designing occurs in the artificers mind as a sort of organic cad-cam simulation hologram say over several days and especially nights

*8 Action: Not to be conflated with philosophic materialism, or economic materialism and hyper consumption, or epiphanic expressions of the individual ego, action in the sense of this definition means acting wisely, on and with the physiosphere, in order to generate the outcomes indicated in this definition

*9 Wisely: in the sense of the Ancient Greek concept of Prohairesis - choosing and acting ahead wisely

*10 Acting in the sense of the world transformed is used in the sense that the actions referred to in this definition occur in the physiosphere and generate prototypes even second enlightenment 'exemplar projects' that demonstrate a present day action based response to the question ' how then should we live together today for a better world tomorrow for our children?' Maybe after all there can be a spark of Atman in the Exemplar Project.

Related Artificer Concepts

French: Community Animateur - Animation is that stimulus to the mental, physical, and emotional life of people in a given area which moves them to undertake a wider range of experiences and actions through which they find a higher degree of self-realisation, self expression, and awareness of belonging to a community with a future they can influence.[closest English equivalent – community development worker – 60% fit]

Bricoleur - A bricoleur is a 'Jack of all trades or a kind of professional do-it-yourself person.' There are many kinds of bricoleurs - interpretive, narrative, theoretical, and political. The interpretive bricoleur produces a bricolage - that is, a pieced-together set of representations that are fitted to the specifics of a complex situation. The solution [bricolage] which is the result of the bricoleur's method is an [emergent] construction that changes and takes new forms as different tools, methods, and techniques of representation and interpretation are added to the puzzle. One may describe the methodology of cultural studies as a bricolage. Its choice of practice, that is, is pragmatic, strategic and self-reflexive. This understanding can be applied, with qualifications, to qualitative research. [closest English equivalent – tinkerer – 40% fit]

English: Mechanician - Mechanicians are a blend of engineer and builder who possess both design knowledge and crafting ability so that they may plan and personally manufacture devices. Even without modern power sources and techniques, Mechanicians can still build quite sophisticated devices using systems such as springs, hydraulics and wind-based motor systems to drive well greased moving parts. Mechanicians may also be called on to devise new machines and custom build them for specific one off purposes. They often practice a particular trade and are called Locksmiths, Shipwrights, Architects, etc. A skilled Mechanician may well master several such professions.

Mechanicians exist beyond an artisan a medieval term and included these characteristics:
> **Designing and drafting:** A Mechanician may draft and use plans accurately. A Mechanician may draw freehand sketches and may draft, read and use plans and diagrams, provided that they relate to an ability with which the Mechanician is familiar
> **Supervisions**: Many projects will require the assistance of Artisans and Labourers, as well as other Mechanicians. Mechanicians gain the ability to supervise subordinates who are practising either the Mechanician skill or an Artisan skill necessary to the Mechanician's project
> **Artisan Skill:** Many of the Mechanician abilities give a grounding in an Artisan skills
> **Combinations:** A Mechanician may combine known abilities and skill areas. A Mechanician may combine any or all of their areas of expertise in the design and execution of a project. A Mechanician may also combine their skills with other crafters to produce items. This is where the Mechanician approaches the realm of the Artificer.

L'esprit Accor – is the art of blending skills, of combining traditions of the past with the modern innovation, adding the generosity, discipline, imagination and warmth which can carry our work to a higher level of excellence? L'esprit Accor then is a conquering vision of success. [closest English equivalent – efficacious magnanimousness/morale – 20% fit].

Bioneer - someone who works for practical and innovative solutions to environmental and social problems based in a philosophy which recognizes the aliveness, interdependence, and intelligence of the natural world. Bioneering is a term that seeks to highlight the work of scientific and social innovators and helps support, nurture and propagate self-reliance sustainability ideas and models. Bioneers come from transdisciplinary fields such as environmental and socio-political activism; "green" biology, chemistry, design, architecture and urban planning; organic and "beyond organic" farming and gardening; indigenous perspectives; biodiversity, bioremediation, and wildland preservation; alternative energy; engaged spirituality, literature and the arts; holistic and "ecological" medicine; ethno-botany; socially-responsible entrepreneurship, business and philanthropy; the environmental justice, women's and youth movements; independent media; etc. In many cases the technological or social exemplar solutions to problems are founded on emulation of natural self-organizing systems.

Zen and the Artifice of Ingenuity – the link between broadly conceptualised Bush Mechanic e.g. as Bricoleur and Zen through Ingenuity is explored in outline in Appendix E. This e-book is essentially an exoteric one, esoteric links are identified in the Appendices.

What is Exemplar Systems Development?

As indicated above the term holonic systems development is preferred however, the meaning is hidden from the general view.   From an holonic perspective, i.e. a systems within systems viewpoint, systems have various levels of consciousness and hence agency thence humans can be a system with agency within a bigger exemplar system which in turn is within broader socio-environmental systems and so on. Human beings, understood as higher level holons, then are systems with greater levels of consciousness and hence agency than cells, ecosystems or robots. Yet even among humans, conscious agency varies immensely, according to cultural upbringing/suppression.   To my mind, the **human brain/body** is a system (a brilliant design which originally stimulated the birth of systems

theory, holonics, etc.) a system that is amenable to learning/development and thus increasing levels of consciousness and thence **agency**. So if we understand systems as does Koestler (1978), they are integrative in the sense of the related skill set arenas ESD (structure) for the operation of the Artificer (agency).

Individuals inc. Artificer's and Bush Mechanic's exist in a structural i.e. process environment which, in a holonic context is systemic and nested. Further the individual artificer process is directed, intentional, applied and even aspirational. This takes foresight, design planning, simultaneously holding the **macro and micro** as crucial - **fractal synthesis**, operation of tools, **data engines** and the like as well as commitment and a certain sense of **healthy ego/purposefulness**. Notwithstanding these abilities on their own are of little contribution to this research report unless they are harmonised in an **Exemplar Project** through what is called in this research project **Exemplar Systems Development.**

Thus **agency and structure** are both incorporated in the term ESD, which coincidentally, also means **Environmentally Sustainable Development.** This broader sense of ESD also requires **Exemplar Systems Development**. Here systems are technological and social and environmental an enviro-socio-technical ecology (after Emery's (1993) socio-technical systems) as it were, or eco-technical for short. In terms of this eBook we move from technical to technecial with the incorporation of techne to eco-technecial with the incorporation of ecology and possibly to tecohnecial!!.

Back to our Future: from linear logic to vision logic to Homo neo-globo

Many commentators would see the Artificer as a socio-technical construct however Artificing also includes the biosphere via. environmental considerations such as gardening - this extension and deepening are unescapable.

The noosphere and physiosphere and sociosphere and biosphere here are in this regard, concentric with the latter incorporating the rest. Thus the physiosphere extends and deepens Wilber's (1999: 184-193, 2000) view that it is through vision login that we embrace our future that is through a linking or re-embedding of the noosphere in the biosphere. Clearly the biosphere is embedded in the physiosphere so that in a fulsome sense Wilber's vision logic requires this extension which also has the fortunate effect of re-valorising the Artificer whose art is the stitching together of the two - sacred stitches made from sacred geometry.

Further grounds or concretises logic in the physiosphere which we experience as Gaia or mother earth and thus re-enculturates female agency - indeed the Neolithic axis mundi with their small clay goddesses with their pendulous breasts large bellies and fertile broad hips and thighs. Today however any attempt to exercise female agency a today in things such as the Bush Mechanic an Community Economy Development which are committed to gestative co-creative co-operative, networking, collaborative, nurturance of person, process and place rather than dominance of product, is likely to be expelled even expunged by the destructively competitive male agency dominated dominator system. The global Neo as it were - Homo Neo-neo-globo.

How does ESD work?

In basic systems theory there are four stages (1) Input→ (2) Processing → (3) Output→ (4) Feedback → (to input). In terms of the four Artificer principles found through Grounded Research they fit into these systems theory stages as (1) Global Problematique - *Artificer Principle 3* and Social Holon - *Artificer Principle 2*; (2) techne, Artificer skills inc. horizontal associated skill sets and vertical skills re 'D'esign within eco-technical sub-systems (3) Exemplar Project - *Artificer Principle 1*; (4) Action Learning - *Artificer Principle 4*. **NB:** sequencing differs between the emergent categories/principles from

Grounded theory and that of Systems Theory as the former are recorded in order of the strength of their emergence i.e. number of field observations in this meta category and so the Artificer principles relate to those identified by Grounded Theory rather than Systems Theory. **Reader's note**: This eBook is primarily a *grounded theory action research project* and secondarily a *systems methods* approach though the two approaches are related as above in terms of agency and structure/process respectively.

Personal Journey (1994-2005)

In the mid 90's I started a four year stint as an academic in the social science area in a well known Australian University. This was after a 20 year period as a bureaucratic including towards the end of this a period of several years (some in the Senior Executive Service) at Director and Program Director level – in the training and labour market area. Furthermore during this period I had extensive experience in the community sector in facilitating in my Government position of Division Director and Project Manager of some 10 Local Employment Initiatives, 50 community groups, and 1000 small enterprises as well as working in separate but related initiatives after hours as a volunteer, including 120 staff in 20 locations around Queensland.

RIP academia

The subsequent experience of academic was essentially built around words and palace/faculty politics and little else, words in the literal as well as metaphoric sense in that the words were the spearhead of a belief i.e. a pedagogy that elevated text i.e. ideas i.e. concepts i.e. thinking far far ahead of doing. We see this elevation deeply embedded in our Western society in the academic, scholastic, bureaucratic and industrial arenas. I read hundreds of thousands of worlds (like those you are reading now) and wrote tens of thousands of words in course material which was sent out to students I never met and only knew from the occasional phone call/email, who responded with several thousands of words as assignments on which I wrote a few hundred words – and if they did this twenty one times they got a piece of paper with thirty one words on it called a degree in Social Science.

Even more tragically most of my colleagues had worked only in the isolated halls of academia never having to manage anything but writing course materials, helping students and responding to marking requirements.   This experience was deeply disillusioning and extended to the point of academics gaining stars for publishing but no credit for being in the senior executive service i.e. management where things actually got done.

What is even more incredible my colleagues were writing course material for which they had no basis or experience in reality. For instance a colleague wrote a course on 'The Learning Organisation' and he had never worked other than in a University, never had a management position, never sought to introduce a learning system into an organisation, never had responsibility for staff – never, never worked in a group situation rather from his office in a hall next to other offices in other halls in the faculty. Yet he was, we were, writing materials required for the professional qualification of students, about which with had information and ideas but no experience in design or implementation or review.

This tragically is the reality of most tertiary education today in the social sciences – purely a noospheric experience – with little or no connection to the student's reality, drawing on no experience of the lecturer. Furthermore the flip side of this there was for instance no recognition of my decade experience in senior management or the pragmatic realities of getting community projects actually going (let alone having them work long term). It actually struck me if this is so far from an authentic learning experience what could a real authentic one look like?

Eventually this question helped push my exit from academic and ultimately led to this project.

Pracademic - resurrecting the academic

Over the past six years I have sought to answer the question what would a (not the) ideal learning environment look like given my and other's praxis experiences over the past 20 years, since the mid 1980's. As part of this process in the early 2000's I commenced documenting what to me met the criteria for a vibrant learning process.

Towards the mid 2000's I sought to concretise this process which I had independently called artificer learning representing a form of embodied action learning focusing on exemplar projects and service aimed at a better world. Here artificer is an extension of artisan and a transformation of apprentice, tradesperson, master tradesperson. It was only in early 2005 that I discovered the term artificer was applied to vocational style learning/praxis in England around the period mid 1300's to mid 1500's (Statute of Artificers 1536 England) i.e. pre the Industrial Revolution and even earlier.

In Australia where reductionism still rules, there is not much cultural, industrial, vocational or legal space left for such people and processes however the more I looked the more it appeared that the artificer was in fact most relevant to our modern day 'problematique'. Furthermore that the 'spirit' of the artificer was alive, having been marginalised could now to be found in what has been called the 'bush mechanic' - a self reliant person who can, largely in the informal sector, innovate and solve difficult problems practically with what is on hand.

At this time I started to seek examples of this sort of learning and in this regard I came across the people reported on here and in a couple of instances was able to seek someone I had known for some years in this new light. At this point I started a learning journal (mid 2002) and commenced overtly to work with these people as indicated in the table in the text of this report. So in a very real sense this project has grown out of my own concrete praxis.

Overall Reflective Praxis project timelines and stages
Stage 1: Praxis comm. 1994

Commenced in mid 1994 when I designed, developed and applied a specific form of Action research called *Reflexive Praxis* for my initial doctoral dissertation in 1993 [Wildman (1993) and later confirmed in [1997]], as indicated above this present Reflective Praxis cycle commenced in 1994 when I started as an academic in the Social Sciences area.

Stage 2a: Action Research Intervention Phases comm. 2002

First I had designed what for me was an 'ideal' form of learning (2002);
Second I commenced on a process of experiencing this form of learning (2003-4);
Third I designed this into an action learning process using grounded theory to elicit key aspects of artificer learning/bush mechanic'ing (towards end 2004)
Fourth, from early 2005 documented and commenced to write up the results (this report) (Jan –Feb 2005)

Stage 2b: Supplemental methodologies - applying (a) Heuristic Inquiry and (b) Causal Layered Analysis, to the research project and period (02-2005)

Using the five stages of Moustakas (1990) who developed the Heuristic Inquiry methodology aimed at inquiring into complex environments and Inayatullah (1998) who developed the Causal Layered Analysis Methodology aimed at giving depth views in

developing four vertical layers for analysing external events – see Chapter 5 and Tables 3 & 4 below in this regard.

Stage 3a: Principal Research Stage - Applying Grounded Theory to the research project – this write up (01-05 to mid-2005)

Early 2005 I commenced coding using grounded theory. Glasser (1995), Dick (2000) and to a much lesser extent Wildman (2002b). In line with respecting the body-mind-planet link it is important for a short inclusion to reflect on an important 'bump' my own journey while completing this research task.

Backgrounding & photos of the Exemplar Project: the boat, trailer, truck and shade sails - from Jenks Ocean Racing Hull to Completed Family Weekender built to Australian Cruiser Class Ocean Racing specs

The Exemplar Project task on which this eBook is based has taken some 6 years to early 2008 (actual building from late 2003 to early 2007), and included this textual academic dimension as wall as an artificers dimension of building a boat (8mtr) from scratch inc. trailer and fitting it out as well as water testing etc.

Design was chosen over a six month period. To this end around 1000kms were travelled in South East Queensland and Northern New Sough Wales looking at options inc. second hand hulls and complete boats and ultimately the project included boat, trailer and truck. As at the weight/size of the boat was substantial, particularly with a two engine installation and innovations required were also substantial a second hand boat would need to be substantially 'retroed' i.e. retrofitted. Consequentially it was decided to commission and quality supervise a new boat. The hull was commissioned in early 2003 with technical drawings provided for the motor pod and with strengthened transom and cross members in the hull section (visually sighted by us during the build). Following is a list of the main innovations incorporated into the boat.

Backgrounding:
<mark>1 The Boat arena:</mark> Sea~date - 8m Millennium Weekender (build inc. boat, trailer, truck mods, yard modifications and shade-sails, 2003-7) based on USA designed (late 1960's) Jenks ocean racing hull with twin contra rotating 225hp Evinrude's (1996-98) turning 21'' Stainless Steel props
Max speed: two up with gear 50 knots **Construction standards:** Australian Ocean Racing Cruiser Class Race boat **Construction commenced:** Jan 2003 **First Registered:** Mid 2004
Theme: combination of (1) go boat (2) fishing boat and (3) weekender with the wife
Intent: Aspirational protirement (proactive retirement) goal
Updates and Innovations: Home built Stainless Steel trailer (304) with self launch and retrieve, subframe adjustment provision for bare boat, one and two motors (2) navigation instrument pod with two GPS the second for fuel computer (3) hydrodynamic enhancing buoyancy and stability increasing reinforced transom motor pod design (4) no below water line hull penetrations (5) sliding stainless steel bimini covers front and back (6) zip out sun roof section in front bimini (6) bow ladder (7) motor direction indicator (adapted from sail craft indicator) (8) Blue Holly racing fuel pumps (9) four fuel tanks (10) wave piercing bow with inverted hull type front deck that sloughs off greenies before they take out the windscreen (11) fold down rear seat with (12) provision for feet under back and sides for fishing (13) external and transferable stainless steel live bait tank with cutting board and barbie platform (14) wake board attachment on Stainless Steel section of the Targa (15) field disconnect battery switching (16) combination of 12 v and 240 v power (17) caravan type shore power plugs one each side (18) 20000w inverter for microwave and DVD (19) Toilet (porta pottie) in cabin with privacy screen (20) pressurised water system inc. deck shower (21) intelligent French battery charger and shore power regulator (22) all wiring in marine grade tinned wire each join soldered with heat shrink (not open crimped) (23) 85 l fridge (24) removable rear cushions for when fishing (25) no walk cabin (26) design and cost input modules of $15000ea.
New replacement price for boat: $110g for boat, cost of this boat $90g.
<mark>2 The Trailer arena:</mark> 304 stainless built by us (Don Miller and myself as apprentice, gofer and bill payer) in three months in early 2003. The only things on the trailer apart from the axels and wheels that were paid for was the bending of the two main ss'members. We fabricated the sub-frame, roller holders and walk ways etc completely by hand in the back yard. The trailer is designed for drive on drive off - another local innovation.
New replacement Price for trailer: $20g cost of this trailer $13g.

3 The Truck arena: after much looking I chose a 1997 Daihatsu light truck dual cab petrol. Petrol was selected as use will be intermittent and diesel doesn't like sitting for extended periods + the dual cab will allow crew to come with in the one vehicle (max seating 6). I had always wanted one of these superbly functional vehicles since they came out in 1977, however they were too expensive then at $32000, now I actually have one. **New replacement Price for truck:** $45g cost for this truck $15g.

4 Shade Sails arena: Installed mid 2004 for sun and UV protection with additional 4.2mtr gate for ease of ingress and egress with a tarpaulin system for water and dust protection.

New price for Shade Sails, gates& tarp: $12g.

5 Exemplar Project all arenas overall cost: $130g

6 Input costs in kind: approx 3000hrs 50/50 Don (the boat tech artificer who undertook the project - I acted as apprentice & gofer)/Paul.

7 Skills learnt (PW): SS welding, basic fibre-glassing, project planning, catalogue use, integrating components, importance of my apprenticeship (boat) a 4.8mtr 1973 Savage Escort with 140hp 1985 Suzuki motor & all the lessons learnt thereon were documented on my computer & applied then to my EP, drive-off drive-on skills, book-keeping, patience, resilience, stoicism in face of being rubbed out around 550times, learning journal skills from my doctoral studies reapplied.

8 Photos taken: 15-10-2005 – 12-12-2007 by Paul Wildman

Stage 3b: Principal Personal Stage - surviving cancer

A personal note on an important bump in my personal journey of linking mind and matter - the Exemplar Project and Cancer

In the midst of this process in mid 2005 I went for a blood test and found I had a serious form of prostrate cancer with a PSA of 17 (four-five times the normal for a male in his mid 50's).

Biopsies proved an aggressive cancer that had started to spread. Because of delays in the health system ($##%@&&^%**) it took some four months for an operation to occur on the 12-12-2005. In this interim period I had several nights of no sleep walking the quite and dark house acting as if I could hear the grim reaper in another part of the house looking for me - so far we haven't met in a situation where he has the upper hand - however it will come. Prostrate cancer is the second largest killer of men in Australia after lung cancer.

Subsequent analyses have been quite positive, with a PSA reading (prostrate specific antigen) well in the safe range. Further I have come face to face with the tendency for males not to seek medical advice and it has taken me a fair bit of forceful persuasion to get my male friends to have their PSA checked. My great fear was that I would not see my grandchildren grow and that my wife Annette would be left with the dreaded 'UP' - the Unfinished Project one sees advertised in the paper every month or so, a UP because of death, cancer, injury, disease or some other terrible affliction.

Stage 4: Next Reflective Praxis Cycle (mid 2005 towards 2015)

This action research project is designed to lead to improved praxis for the next 10 year period.

Research program

(a) Field component

The field research program covers the research period early 2002 to early 2005 (basically a 3 year period). This research was conducted along side key artificers I have had the privilege to work with during this period. My involvement has been to work intensively with some six such individuals, four intensively and two less intensively. This e-book is about the former. They include a disabled person, an artist, a philosopher and a boat technician. I maintained a learning journal during this period to detail the approximately 70 Learning Insights (LI's) I have had in the decade of cumulative experience while working with these folks over this 3 year period.

(b) Coding component

Undertaken from 01-2005 to 03-2005. The Learning Insights from (a) and Grounded Theory was applied to identify the key attributes or principles of artificer learning.

(c) Write up component

Undertaken from 04-2005 to 07-2005

Chapter 2 - Key Philosophic Orientations of the Research Project

Action as locus of authenticity of inquiry

Action as locus of integration of authenticity of textuality can, by distancing authenticity from both the text and textuality itself, allow the performative dimension of discourse to dare to put its own integrity at risk in acting on the world in attempting to change it, furthermore by acknowledging that success, as in a simple understanding of causation, will, in this dimension of authenticity will often be more evanescent than with conventional text.

Such an approach to authenticity through action may be seen as aimed at casting suspicion on the functioning of ordinary academic as in bureaucratic consciousness in its extension of textuality e.g. through policy development, to demonstrate the radical impotence of such consciousness for instances in 'operatives' following operational step by step instructions in a stable simple cause-effect world. This may be contrasted with enacting ideas for a better world in today's turbulent one. Everywhere we face contradictions in that enactments often lead to divergent even enantiodromiaic outcomes (where we achieve the opposite of what we set out to do and we become what we hate).

This enactment when coupled with distancing that action brings to text a view emerges of such status quo consciousness either as a defence against meaning inc. norms in general that are imposed from the outside, or rather its unwitting ally through the generation, at least in part, of such meaning and norms. This occurs from within the sphere of action particularised in this e-book as operatives following set instructions, which may be contrasted with holistic approach to enacting the 'exemplar project' conducted by the artific'er/futuring'er/bush mechanic'er.

CHOSEN Ethical position re Moral Philosophy
Rule based consequentialism with a dash of deontology

The chosen position is that of rule based consequentialism with a dash of deontology (integrity). In that the chosen position is one where ones own integrity (deontology) is publicly articulated and defended in the context of the golden rule which in turn is subject to similar collective ethical scrutiny and is outworked in exemplar projects. The following steps represent this position. Cox (2005); Habermas (1987), (1992), (1997); Mochelle (1994), (2001).

This means for the project that as research and apprentice Artificer one holds in increasing order of priority (artificer) [& decreasing (cognoscenti)]:
(1) **A principled, global ethical view of one's own**, given the desire for a better world & considering the word problematique, about how the world's people should live together in future starting today to help achieve this better world for our children?
(2) An obligation to **find agreement with others about those principles** - in a discourse ethical manner
(3) An obligation to become **proficient at techniques & methods** to explicate the **content**, design & implementation arenas of such discourse & its resultant principles into concrete prototype exemplar case study projects that braid thinking & doing in terms of (6) below
(4) An obligation **to work with others** to design & then seek to enact & learn from these agreements collectively through exemplar projects
(5) An obligation to serve as **role model**, i.e., to exemplify those principles in organised relationship with others in ones personal life & in the exemplar projects one commits to

(6) To think & Do the above in the context of these **simultaneously braided foci:** (a) Integrity & Ethics [balances internal integrity and external system]; (b) Process & Content; (c) Big picture & Local response; (d) Node & Interface; (e) Horizontal & Vertical (f) Agency & Structure; (g) Inner & Outer (journey); (h) Nooshpere & Physiosphere.

Chosen Epistem - Futuring

Epistemically there are four broad options within which to situated the research project and have been around since at least Aristotle's time, they are:

1. **Empirical**

Scientific - facts and figures, predictive, reality is external and out there.

2. **Interpretative**

Hermeneutic – how to we interpret the present to make sense/meaning of the future – being here is external – facts here are seen as epistemically valorised data flows e.g. - Mother Nature.

3. **Critical**

Critical - Feminism, Marxism, Post Modernism – here the future is a platform for critique of the present to uncolonise the present and show how it can be different, facts are seen here as hegemonic statements developed genealogically to silence alternative espistems Recently a fourth has started to emerge. All the above represent strongly noospheric or cognitive approaches to the knowable.

These three represent the conventional Aristotelian epistemological taxonomy. Recently these three have been 'coalesced' into a 'grand synthesis' of four quadrant taxonomy of human development by Wilber which includes inner | outer axis and an individual | socio-cultural axis in what he calls an 'integral' approach. Wilber (1995). My approach in this e-book claims no such grand synthesis, nor does it seek to critique internally Wilber's brilliant work. As his work relates to the 'artificer' epistem there are however, several comments all pedestrian that may be relevant.[1]

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[1] Wilber's work is in my view intellectually cumulative and brilliant yet it remains trenchantly cognoscenti and could well embrace enactment or agency or instrumentality, as in the concept of integral artificing. Wilber (1995:424). I argue strongly that such a concept is qualitatively discrete from, and equivalent to, the above epistemic trinity of empirical, interpretative, and critical. This book then, sees Futuring as a fourth type of epistem that is qualitatively equivalent to each epistem in the trinity (empiricus, hermeneuticus and criticus) as compared to the conventional view of enactment as mere operational derivative dimension of epistem. This critique can also be applied to the conventional Aristotelian trinity discussed above. Wilber does advocate a transcendent form of logic which he calls 'vision logic' however this concept is trenchantly noospheric has no pre-requisite, pre-commitment or predilection to <u>action in the physiosphere</u>. This book argues strongly that it is in the physiosphere that we need constructive wise enactment. Artificing is one epistem that seeks to do this.

His application of the 'holon' concept is path-breaking and directly relevant to one of the key criteria identified for Artificer Learning further his critique of what he calls 'homogenised reductionist analytical instrumentalist flatland Western systems theory' with its associated 'machine mentality' Wilber and his contemporaries such as Beck and Cowan (1996) in 'consciousness evolution' are well written and clearly illustrate how we tend to eliminate the individual agency and look to horizontal (disciplines) and not the vertical (consciousness) interfaces of knowledge so crucial to a fuller and deeper understanding of the issues at hand as well as the development of any related enactment algorithms or heuristics.

This is a trenchant and in many ways valid critique of much Western noospheric philosophising and thus also a valid critique of the thesis of this book - the artificer. The artificer does not appear in Wilber's four quadrant cognitive taxonomy of the two axes of individual | collective and interior | exterior. There is however a loose fit between Beck's (1996) spiral colours/stages and Kohlberg's (1976) Stages of Ethics development (details are beyond the scope of this work).

Wilber's critique is directly relevant to the thesis of this book, the various solutions however in terms of vision logic Wilber recognises the inherent flaws in obsessing about systems, e.g. spiral dynamics is a sort of meta macro historical world systems theory, that largely leave out agency. The spirals representing evolving individual and group consciousness 'stages/levels/sprials' are realised in progress from spiral 1 to 9 : 9 coral - integral; 8 turquoise - holistic; 7 yellow - ecological; 6 green - consensus, 5 orange - strategic, 4 blue - authority,3 red - egocentric, 2 purple - animistic, 1 beige - instinctive/survival.

Spiral dynamics and the like, while they do represent breakthrough noospheric taxonomies and understanding yet seem to add little to Wilber's path breaking analysis.

At this stage they Wilber's approach does little, to my mind, in:
(1) Articulating or validating enactment (key integrating factor) and its associated instrumentalarity, i.e. re-linking thinking and doing, (2) Recognising the human potentiating power of manual dexterity, (3) Recognising the Hellenistic view that *active engaged practical life wisdom* is something inherent in being human, (4) Recognising the importance of the lived life as 'the' generative exoteric morphic field for the development and expression of theory <u>and</u> practice, (5) Embedding discourse as in citizens deliberation and, (6) Problematising the Platonic epistemic belief that 'W'isdom is noospheric; And still relies on: (7) The traditional Western Darwinist view that evolution has moved as in a straight line 'times arrow' from Primitive through Neolithic to Modern (where we are today), (8) What may be seen as Cartesian dualities of inner | outer, individual | collective, and finally (9) a re-inscription of the (Western) Cartesian ontology that divorces the activity of the mind (the Global) from the activity of the body in the (local) world while privileging the former i.e. 'N'ature as in the globe and 'n'ature as in the tribe/local viz. also 'E'nvironment and 'e'nvironment. In this sense 'N'ature removes/abstracts from the importance for individual experience of the 'muscular consciousness', visceral awareness or auditory attunement. (10) Wilber tends to treat mundane, everyday experiences as lacking when compared to mystical experiences of oneness with pure Spirit.
To my mind these may be as subsets of enactment or as Ingold (2000) call it 'dwelling'. I suggest Wilber's excellent work could benefit from another axis from the centre of the four quadrants - enactment, in line with its broad meaning as indicated in the above 6 points. This is what I mean by 'integral or vision artificing'.

That is Wilber, in my view, does not yet transcend the noosphere into the physiosphere and if when he does approach a boundary he tends to 'spiritualise' the interface into the 'theosphere'. To his and his collaborator, Andrew Cohen's credit they do say '*The future needs to be created now, and we don't have any more time to sit around and enjoy the ride. We <u>have to make something happen</u>'*. [underlining added]. Huston (2006:48). Artificing can, at least, help the '<u>*make*</u>' part of this quote happen.

Wilber argues that from a spiritual perspective 'the universe (God or creative principle) can only know itself the unique capacity for consciousness' I would add one word to this aphorism 'expressed'. So the full aphorism would read; 'the universe (God or creative principle) can only know itself the unique capacity for consciousness *expressed*' that is articulated in ways informed by ones highest mind so to speak one's authentic self. Huston (2006:46). It may well be that the next step would be to posit expression as inherent in consciousness. In this way the expression of higher and higher forms of consciousness could become the new evolution.

Yet Wilber's and Cohen's analysis remains, for me, trenchantly noospheric and they effectively offer few if any insights as to how this <u>*making*</u> can occur. Further it is highly that a Wilberian analysis of the Artificer concept would place it in the 'machine mentality' category and thence associated with capitalism.   A valid concern for Artificing from an Integral/Wilberian perspective is that Artificing is historically strongly related to the physiospheric expression of the noosphere almost an artefact of the Industrial Revolution as it were and thence runs the risk of being disassociated from the biosphere and theo/cosmosphere. Wilber (1995:197).

Although mentioning 'civics' several times [Wilber (1995:457)] he does not allude to any logistical mechanisms, nor does he validate a search for same, such as for instance 'sociocracy' or 'demarchy' [Burnheim (1985)] that can take such noospheric conceptualisations and translate them through artifice into enactments in order to answer the 'civicus' question of normative futures 'how then should **we** live ***together*** <u>today</u> in order to demonstrate today the practical possibility of a better world tomorrow for our children's children?'. What are the glocal priorities? How are they decided/changed? What are the underlying principles/ethics we seek to carry forward in all this? What are the enactments – policies, prototypes, regulations, procedures, monitoring, learning harvesting? What are the decision making protocols – inclusions, resource allocations, transparencies? What are the education curriculum priorities for children and youth – who decides and activates these?

So in short in many ways exoteric Artificing falls far short of qualifying for Wilber's four quadrant horizontal and vertical 'integral thinking' qualification. At the same time, I acknowledge that Artificing could well seek to incorporate developments from the integral thinking movement. In counterpoint I argue Wilberian

4.   Futuring

This approach, one which I helped birth in the early 90's, is that of engaged knowing, if you like encouraging the transformative re-emergence of Active Practical Wisdom that Acts Ahead Wisely. This may be called Futuring[2] or as in this study Artificing commonly know as Artificing. Here reality is established through enactment that is the braiding of thinking and doing. Futuring is also called Artificing, Anticipatory Action Learning, Critical Futures Praxis.

Qualitative research generally locates in 2, 3 and to an extent 4. This epistem i.e. No. 4 however, links to the world as we know and experience it as it is out there so to speak recognising that a fact or figure does not exist independent of an observer and an observer does not exist independent of her epistem. Quantitative research tends to locate in 1 and in part 4 almost never in 3. Cognoscenti' research however relates to 2 and 3 and is largely comprised of social sciences.

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perspective needs to incorporate enactment and civics - which are to an extent already part of the artificer concept . Such incorporation may well lead to what I have called above 'integral or 'vision' artifice dimension to invoke such a vision for a new world. Moreso I argue that given the Western world's predilection to the noosphere and the operational/instrumental label attached to enactment (95/5) I maintain that today we urgently need a positive discrimination towards synthetic enactment/artificing, as a counterpoint to Wilber's trenchant critique of vapid and flatland instrumental reason in the West as a 'downward withering glance'. Wilber (1995:399). Here we need to be cautions of the all too common, conflation of instrumentality and enactment as the 'machine mind' in short between soft systems heuristics and mechanical algorithms, between techne and technology. These two attributes are most distinct, with the former being incorporated in Artificing. [As per Chapter 9 – The Singing Tool]

[2] To my understanding Jerome Glenn was the first to coin the term 'futuring' when he published an article called 'Futuring..' in January or February in 1972 or 73 - then defined as a process that 1) identifies trends, 2) projects them and includes broad participation to describe scenarios, 3) corrects them to be more normative, and 4) traces them back for policy and strategy to do today. In the early 90's I extended this by adding, 5) seeks to assist in selecting a particular scenario and then, 6) to design implementation thereof through a prototypical exemplar project then 7) assists efficacious implementation thereof while 8) learning through an action learning cycle therefrom.

Chapter 3 - Chosen Research Paradigm – Qualitative Research

Qualitative Research a brief explication

The paradigm chosen for this research project is Qualitative Research. That is **qualitative research** must needs integrate the external world of the researched and the internal world of the researcher which inturn integrates thinking and doing. This was the thesis I expounded in Reflexive-Praxis in the mid 1990's, developed and then applied in my doctoral research. Wildman (1995). So in my view a thoroughgoing qualitative research process needs must have a methodology to engage the world of the researched and a methodology to engage the world of the researcher.

CHOSEN Qualitative Research Meta Methodology (QRMM) - Reflective Praxis

The Meta QRMM chosen is Reflective Praxis, meta in that it represents an assemblage of related component methodologies.

Reflective Praxis - outline
Reflective praxis may be defined as a type of Action Research which in turn is a type of Qualitative Research:

> *A meta process whereby action oriented reflection enters a transformational relationship with a period of extended practice with an eye to generating meta meaning and learning insights that lead to new current praxis.* [Wildman 1993, 1995, 1997]

Or more technically:

> *A meta process whereby action oriented reflection enters a transformational relationship with a long-run period of practice through a specifically designed research orientated short-run cycle of action & reflection with an eye to generating through this re- processing of ones long-run praxis: meta meaning; ethical intent, efficacious action &, learning insights that lead to redesigning current as well as future praxis.*

CHOSEN Qualitative Research Methodology (QRM) - Grounded Theory
Grounded Theory and Learning Insights

The QRM chosen for the actual processing of data for the research project is Grounded Theory. The following notes on the methodology draw strongly from Dick (2000) who has written a particularly understandable, useful and practical relatively short guide (30pgs) on Grounded Theory and its application. The word 'you' is regularly used in the following section to denote the researcher using grounded theory.

Grounded theory begins with, and in, a research situation. Within that situation, your task as researcher is to understand what is happening there and how the players manage their tasks and roles. My guess is that you will mostly do this through observation, conversation and interview. After each bout of data collection you note down the key issues: this I have labelled '**note-taking**'.

Constant comparison is the heart of the process. At first you compare interview (or other data) to interview (or other data). I think you'll be surprised how quickly theory emerges.

When it has begun to emerge you compare data to theory. In other words you identify the theory that is implied by the data. You then continue to refine the theory by contrasting it with each new piece of data that becomes available.

The results of this comparison between data and theory (or data and data) are written in the margin of the note-taking as **coding**. Your task is to identify **categories** (roughly equivalent to themes or variables) and their **properties** (in effect their sub-categories).

As one codes, certain theoretical propositions will occur. These may be about links between categories. They may be about a core category: a category which appears central to the study. As the categories, properties and patterns emerge, they and their links to the core category provide the theory. As the researcher discerns it in the data then write yourself notes (called learning insights in this research project) about it. This stage is **memoing**.

The concept and meaning of Learning Insights (LI's) - are particular ah~ha moments one has had during a particular event, phenomena, experience, task or research project
They are the *result of reflection on task* so to speak and thus are insights into one's learning viz. what one has learnt <u>and</u> how one has learnt it.

Generally they emerge from a field journal/notes where one records ones more mundane research activities on a day to day basis. For my own work I use two learning journals (1) day to day research activities and field records and (b) learning insights that come therefrom. Logistically I simply have a page of an exercise book with several columns and record key reflections or LI's on a day to day basis.

In my most recent research project (The Bush Mechanic Action Research Project) my book pages were computer pages and I recorded directly into my computer. This is most useful as it allows for rapid grouping in the next stage of applying a grouping approach to the insights e.g. through Grounded Theory at a later stage. Typically in a project of 4 years I recorded some several hundred entries in my field notes leading to 83 learning insights. Each LI is brief a sentence or at most a paragraph - preferably a sentence. This is an important discipline as the issue is not breadth of coverage e.g. a letter for friends, but rather conciseness for the research project. So for each one to three pages of field notes one may well have a learning insight.

It is crucial to distinguish thus between field notes and learning insights in terms of numericality and conceptually aggregation (viz. there are often 20 or even 30 to 1 in the first instance and conceptually they are at levels or categories of abstraction above actually events i.e. at somewhat abstract levels where one can start to make cross temporal and inter-positional meaning. The columns are for numbering and later coding using, in my instance, Grounded Theory.

Conceptually a LI may well occur where upon reflecting on ones field notes one sees (1) lateral connections between aspects, (2) sequential connections over time in the overall research task not evident beforehand, (3) vertical or deep connections in meaning, (4) crucial or critical feedback that has illuminated the research project task at particular almost 'turning points'.

Sampling - As the data collection and coding proceeds the codes and the memos accumulate. You add to your sample through **theoretical sampling.** This is purposive sampling which increases the diversity of your sample, searching for different perspectives and the theoretical properties, dimensions and criteria that emerge therefrom. When your data collection no longer adds anything new to a category, that **category has saturated**. You may then cease coding for that category.

In time your core category and all its linked categories saturate.

You take this as a sign that it is time to move to **sorting**. You group your memos, like with like. You sequence them in whatever order will make your theory clearest. This order now leads to the emergence of elemental categories. And over a number of iterations and recycling into coding again (see above) for the categories and doing so until the categories become saturated one establishes meta. Your task here is also to identify **categories** (roughly equivalent to themes or variables) and their **properties** (attributes which are to large extent) their **sub-categories**). A superordinate category is one that the other categories hang off or depend on – a sort of hierarchy of categories. Ultimately leading to coding the meta categories and determining several (usually up to 6) what may be called meta meta-categories.

Triangulation occurs now where one compares outcomes with that from other (usually 2 giving thee in all) approaches and methodologies in this instance Causal Layered Analysis and Heuristic Inquiry. Clearly the literature becomes more important at this stage. [I have added this stage as it is relevant to this project]

The **literature** is accessed as it becomes relevant. It is not given special treatment. Glaser makes the point that most research including qualitative research is hypothesis-testing. The literature is given more weight than your data. In emergent research this is not so.

The order of your sorted memos provides you with the skeleton, and many of the words, of your thesis. You begin **writing**.

In fact, Dick (2000:5) after Glaser suggests two main criteria for judging the adequacy of the emerging theory: that it fits the situation; and that it works — that it helps the people in the situation to make sense of their experience and to improve the management of their particular situation.

Of critical importance is to be crystal clear about what most differentiates grounded theory from much other research is that it is **emergent**, **bottom up** from observations and **explicitly** so. **It does not test a hypothesis**. It sets out to find what theory accounts for the research situation **as it is**. In this respect it is like action research: the aim is to understand the research situation. The aim, as Glaser in particular states it, is to discover the theory implicit in the data. Furthermore the distinction between 'emergence or forcing or leading', as Glaser frames it, is fundamental to understanding the methodology.

This means that it is important to be ethical about the emergent categories that can later provide the basis of a '**local theory**' and not 'force' them into existing categories or 'lead' them into preferred ones. Once a local theory is confirmed e.g. a relationship established between the emergent categories then the theory can form a type of hypothesis and the researcher can seek to disconfirm the relationship and ultimately the categories.

Constant comparison remains your core process. Comparison between emergent categories and levels within, comparison with supplemental methodologies, comparison with afresh field observations, comparison with the literature, and comparison peer feedforward. The key emergent local theory issue at this point is 'how you treat apparent disagreement between your emerging theory and the literature'. Please don't automatically assume that your theory must be wrong. After all, you have been concerned throughout with its fit to the data and its ability to make sense of actual experience.

You seek to extend your grounded theory research into **local theory** so that it makes sense of both the data from your study and the data from the literature while explaining and extending both. This issue - of treating **disagreement** appropriately - has been a focus of some of my own work on rigour in action research.

Critical factors to consider in handling disagreement are:
- **Disconfirmation** is the heart of all research
- One can reconceptualise **categories not as collection boxes** for observations and learning insights **but** rather **as themes or even patterns** and so they become more flows than stocks i.e. more links than nodes, more fluid than fixed, thus enabling adaptation and integration was well as confrontation where relevant
- Consider the balance question 'are the disagreements exceptions to agreement (with your categories) or are your categories exceptions to agreement with the literature?

Indeed comparison and (dis)agreement in the context of disconfirming ones emergent categories can be braided to the research process through having a mentor as far as possible walk the journey with you.

Crosswalk from Grounded Theory categories to actual project activities

For Dick (2000:4) Grounded Theory moves through the following stages (Table: 1). Please note these stages are not mutually exclusive.

Table 1: Crosswalk between Grounded Theory (GT) research stages and this research project with its associated coding

No.	Grounded Theory Stages [Dick (2000)]	Grounded Theory Field Research Tool – this Project	Coding Abbreviation – this Project
1.	Data Collection	Compilation of Learning Insights	
2.	Note Taking	Explication column in Learning Insights	
3.	Coding	Learning Insights	LI
4.	Memoing	Meta Lessons	ML
5.	Sorting		
6.	→	Categorisation [PW addition] → Artificer Criteria [BMC]	BMC
7.	→	Triangulation [PW addition] cp. LI, ML, BMC	
8.	Write up	Creative Synthesis (CS)	
9.	Feedbackx2	**Feedback 1**: Provide a summary of the major categories in the CS to participants and request their feedback (**Fb 2**)- incorporate this fb	
10.	Final Write up	CS incorporating **Fb2** from Stage 9	

Source: P Wildman 01-2005 - based on Dick (2004). LI Learning Insights gained form 2 years of field observations; ML Meta Lessons derived therefrom; BMC Artificer Criteria in turn derived therefrom. **NB: Stages 9&10** have been added by PW in order to at least in part respond to the Action Research critique of GT that is not participative & can lend itself the 'hero researcher' finding hidden meaning in other people's data so to speak without their benefiting or commenting therefrom or thereon respectively.

Results

The four Artificer Learning/Artificer principles are derived from extensive field work and peer discussions with Bob Dick and Evan Hadkins and also feedback and input from Marielle Jansen and Meriel Stanger from January to July 2004. Outcomes from these discussions and fieldwork have been triangulated with the outcomes of the grounded theory research and associated coding early 2005 as codified in Learning Insights and Meta Meta categories in the actual research project report.

Chapter 4 - Applying Reflective Praxis to the Research Question

This Chapter seeks to apply the action research methodology *Reflexive Praxis* to the overall research question of this project. As indicated in the introduction and Chapter 3, Reflexive Praxis (explicated in the following Tables) was developed in the mid 1990's as a method of reprising a decade or so of praxis in order to identify retrospectively meta categories or meta meaning in ones specific prospective data in a way that allowed the researcher to ask how it is that the overall research question was asked. Wildman (1995).

Table 2: Reflexive Praxis Explicated

	Definition/Criteria		Explication
1	A meta process whereby action oriented reflection		Initiating a process of deep action reflection with a view to using learning insights that have arisen through agency expressed in redesign of future praxis/projects
2	enters a transformational relationship		The learning insights transform present action i.e. praxis
3	with a long-run period of practice		(external experience e.g. **building and operating a movie theatre**) A decade or so of praxis inc. for instance: journals, field notes & learning insights, articles, projects undertaken etc.
4	through a specifically designed research oriented short-run cycle of action & reflection		**(towards reviewing the functionality of movies in the movie)** In a process covering up to six months wherein an action based on learning's from past praxis (see 3) are braided with reflections on same.
5	with an eye to *generating*		**(the movie projector** inc. lens, projector, electricity & operator skills) With an aim of *generating* ie. elicit, to uncover, to learn, to discover from the particulars, details, disappointments and insights of this extended period of praxis – this then is *generating* a '3D' space (Inner/outer, Horizontal, Vertical) for colonisation by the outcomes from No. 3 PIDIL - P (Problematique)	I (idea)	D (design)	I (implementation) &	L (learning) summarised as TDL (Thinking | Doing | Learning) leading through 6 to 7 ie. MMEALI based on this extended period of praxis. The 3D space generator of reflective praxis of TDL (input), I/OVH (processing), and TDL (output) **Dimension 1: Input – TDL – from previous action cycle/praxis period**: (undertaking a particular project eg. from Learning Insights) (1) <u>Thinking</u> – reflection, plan (2) <u>Doing</u> - action (3) <u>Learning</u> – review learning insights **Dimension II: Processing - I/OVH (Inner/Outer, Vertical, Horizontal) –** *Reflectively Generating*:(Heuristic Inquiry, Grounded Theory, Local Theory) (1) <u>Inner/Outer</u> – personal meaning, agency, synthesis, I/O relation to action its meaning & priority, understanding from TDL (2) <u>Vertical</u> – synergy, interface, levels of consciousness, layered analysis, synthesis & actions, collective meaning from TDL (3) <u>Horizontal</u> – various knowledge disciplines & action areas, prima mobile for action, synergy across components **Dimension 3: Output – Design TDL – for next action cycle/praxis period:** (1) <u>Thinking</u> – re. results of Dimension II (2) <u>Doing</u> - re. results of Dimension II (3) <u>Learning</u> - re. results of Dimension II **3D = Outcomes** – longer run results from application of this IDO process to the next action cycle/praxis period
6	through this re-processing of ones long-run praxis:		**(the 3D movie** based on ones previous reflective praxis period) and <u>inner/outer</u> (as in meaning & learning's from what it has meant for the researcher and her future praxis) praxis, <u>vertical</u> (as in meaning & understanding from immediate and deeper layers or experience, holonic/nested systems understanding), and <u>horizontal</u> (as in the various content areas of ones praxis). The purpose of RP then is this see(k)ing, generation & recognition of the underlying research question, & its dimensions, based on patterns & insights from this period of reflective praxis (horizontal, vertical, inner/outer) i.e. column 3, e.g. through methodologies such as Heuristic Inquiry, Grounded Theory, CLA.
7	Meta Meaning; Efficacious Action &, Learning Insights (MMEALI)		**(the moviegoer)** That are the reasons for choosing the research question itself. Using the above sequence to **reflectively (re)process ones praxis** i.e. cut it a different way to see what **patterns & meanings**, heuristics, fractals, communities of praxis emerge i.e. I/OVH cp. TDL so that future action cycles of TDL may be better accomplished & more efficacious. The above reflective praxis process esp. through 5 above will generate MMEALI which in turn will

		provide the heuristics for the next cycle of reflective praxis and its associated exemplar project(s).
8	that lead to redesigning current as well as future praxis	Thus current action, commencing future praxis after this cycle of reflective praxis, is modified and understanding thereof deepened through this Design process of P (problematique)	I (idea)	D (design)	I (implementation) &	L (learning) of: reconceptualising, reshaping and undertaking further (TDL) praxis/exemplar projects anew

Source: 06-02-05 comm. 06-02-93 * praxis in this sense is an engaged research <u>process</u> for a long-run period including potentially several 'exemplar projects' – the <u>products</u>; ** building here means 'D'esign process inc. (P) Problematique | (I) idea | (D) design | (I) implementation | (L) learning i.e. artificing a movie theatre as representative of an exemplar project; CLA Causal Layered Analysis – a method of deep futures.

Table 3: Application of Reflective Praxis Matrix Criteria to my Praxis 1994-2004

Definition	R/P Matrix Applied to PW 1994-2004
1. A meta process whereby action oriented reflection	**R/P:** Initiating a process of deep action reflection with a view to using learning insights that have arisen through agency expressed in redesign of future praxis/projects **PW R/Praxis**: Initiating a process of deep action reflection (01-2005 to 06-2005) with a view to using learning insights that have arisen through agency expressed in redesign of my future praxis/projects (2005-2010)
2. enters a transformational relationship	**R/P:** The learning insights transform present action ie. praxis **PW R/Praxis**: The learning insights recorded over the past two years are coded with a view to transforming future action i.e. praxis
3. with a long-run period of practice	**R/P:** (external experience e.g. **building and operating a movie theatre**) A decade or so of praxis inc. for instance: journals, field notes & learning insights, articles, projects undertaken etc.. **PW Praxis:** P1 - In 1994 as I moved into the academic world one of the issues that I was keen to explore was the extent to which academia could embrace an empowering embodied form of learning based on informal learning - a form of action learning which, ultimately which to be called 'artificer learning'. After the academic world I looked to management in the training area (Manager New Apprenticeship Centre) 98-2000 & found this profoundly more bureaucratised than bureaucracy – no flexibility & 100% compliance even to stupid & meaningless rules – no professional autonomy & in spite of my qualifications & experience we were at best only seen as 'operatives'. P2 - Specifically covering the period mid 1994 -early 2005 yet drawing from 1986 on. From commencing as an academic at Southern Cross University to completing my exemplar marine project Boat II ie. a decade or so of praxis inc. for instance including: journals, field notes & learning insights, articles, projects undertaken specifically getting married, renovations downstairs (2000comp) and upstairs (2003comp) boats 1 & II and conceptualising and then coming across a different way of learning through meeting and working with its expositors – Artificers. P3- This project is a direct application of my 2001 work on developing an ideal engaged & embodied learning process that braids thinking & doing & understanding which in turn is based on the frustration from 1994-7 at the almost complete focus on the noosphere and linguistics focus of conventional university operations inc. promotional schemes & courses inc. those that I was required to develop i.e. they are all about words and their manipulation & nothing about the manipulation of external physical reality – physiosphere for a better world. In effect by lack of demonstrating of alternative realities, Marxism and Post modernism and Feminism not withstanding, through exemplar projects academia trenchantly demonstrates its conservativeness. This experience assured me that introducing engaged courses on Community Economy Development would not be possible in conventional University systems. Idea (Noosphere)	Design (Archiosphere)	Implementation (Physiosphere) is the 'D'esign process embedded in an artificers conception of praxis it is not uniquely materialist & certainly not anti intellectual rather this approach maintains that to better the lot of humanity today efficacious implementation of ideas esp. in the arena of social relations & governance are critical as one observes the global problematique. So in this sense the three aspects of Design are braided. P4 - Which in turn grew out of my gut-wrenching experience of the lack of interest in mainstream bureaucracy on empowerment & use of the informal community economy systems in Australian labour market programs in favour of behaviourist competency based training for existing jobs. P5 - This experience arose during the period 1986-2003 when I managed a Division (Employment & Training Qld 2000-03)that designed developed and introduced several such programs however, as was the case Australia wide they were displaced by CBT – competency i.e. behaviour (not learning) based apprenticeship and traineeship programs which in turn flowed from the emergence of globalisation with the transition of the GATT (General Agreement of Trade & Tariffs) in the late 1980's and into the FTA by 1992. In particular this divergence was most pronounced by my involvement as state rep on the National Advisory Group on Local Employment Initiatives (NAGLEI) 1985-87. This basic philosophic clash ultimately led to my removal as Director. [see Appendix B] P6 - In even longer term sense the CBT represents a logical end to the concept of specialisation of labour as developed by Taylor and other T&M theorists in the early 1900's. Ultimately this approach to Human Capital Development is part of the broader canvass of globalisation which in turn is a subset of economic rationalism and in turn in my view part of the misreading of the enlightenment viz the separation of thinking and doing in short a part of the Western lacunae. This in turn was simply the then present day application of the Greek separation of thinking and doing with the thinking part of the equation splitting up the doing part so that relatively uneducated workers could accomplish appropriate service of the machines of the industrial revolution. P7 - Somewhat by accident in early 2002 I came across a person who did substantial work for me in the marine arena. As I got to know him it slowly dawned on me (illumination) that he was manifesting many of the characteristics (& then some) that I had identified in my artificer learning project 2000-2. I decided to document these alignments &

other insights & did this for some 2 years. With this illumination came basic documentation& categorisation allowing me to establish some 8 or so pro tem criteria for identifying a BM/A. This then allowed me to identify several other BM/A's & to seek to work with them to help explicate their heuristic. I did this 2003-4 in all I identified some half dozen BM/A's & included these experiences in the recorded Learning Insights documentation.

P8 - Which in terms of my present understanding, rests in part, on a largely forgotten system of artificing from the more informal system of village economies of the early 1500's predating the Industrial Revolution, whereby the master artificer or master tradesman gained his membership of the collective guild or mutual aid through an exemplar project called the 'journeyman's piece'. Many but not all of the aspects of this form of engaged learning are directly relevant today to 'bush mechanics' and also where the majority of grunt labour can be done by intelligent machines.

4. through a specifically designed research oriented short-run cycle of action & reflection *[a type of backcast whereby one does not seek to relive the past and progress it to the present rather to interpret the past from the critical vantage point of the illuminated present]*	**RP: (towards reviewing the functionality of movies in the movie)** In a process covering up to six months wherein an action based on learning's from past praxis (see 3) are braided with reflections on same **PW R/Praxis**: 01-05 to 06-05 applying Reflective Praxis to the above for example via. a Grounded Theory analysis & synthesis of the 61learning insights developed over the two year (2003-4) action research grounded theory project into 'what makes a much mechanic tick', wherein bushies represent a contemporary illustration of artificer learning while ultimately seeking a local theory of bush mechanics/ artificer learning.
5. with an eye to *generating*	**R/P: (the movie projector** inc. lens, projector, electricity & operator skills) With an aim of *generating* ie. elicit, to uncover, to learn, to discover from the particulars, details, disappointments and insights of this extended period of praxis – this then is *generating* a '3D' space (inner/outer, horizontal, vertical) for colonisation by the outcomes from No. 3 PIDIL - P (problematique)	I (idea)	D (design)	I (implementation) &	L (learning) summarised as TDL (Thinking | Doing | Learning) leading through 6 to 7 i.e. MMEALI based on this extended period of praxis. **Outcomes** – longer run results from application of this process to the next action cycle/praxis period **PW R/Praxis:** In this instance over a 6 month period to mid 2005 to use tools such as Heuristic Inquiry, CLA and Grounded Theory to establish the historicity and key parameters of a modern day western (Australian) Bush Mechanic.
6. through this re-processing of ones long-run praxis	**R/P: (the 3D movie** based on ones previous reflective praxis period) and <u>inner/outer</u> (as in meaning & learning's from what it has meant for the researcher and her future praxis), <u>vertical</u> (as in meaning & understanding from immediate and deeper layers or experience, holonic/nested systems understanding), and <u>horizontal</u> (as in the various content areas of ones praxis). The purpose of RP then is this see(k)ing, generation & recognition of the underlying research question, & its dimensions, based on patterns & insights from this period of reflective praxis (horizontal, vertical, inner/outer) ie column 3, e.g. through methodologies such as Heuristic Inquiry, Grounded Theory, CLA. **PW R/Praxis**: Over this 6 month period to apply these tools or a selection thereof to my praxis viz. the learning insights (20003-4)
7. meta meaning; efficacious action &, learning insights (MMEALI)	**R/P: (the moviegoer**) That are the reasons for choosing the research question itself. Using the above sequence to **reflectively (re)process ones praxis** i.e. cut it a different way to see what **patterns & meanings**, heuristics, fractals, communities of praxis emerge i.e. I/OVH cp. TDL so that future action cycles of TDL may be better accomplished & more efficacious. The above reflective praxis process esp. through 5 above will generate MMEALI which in turn will provide the heuristics for the next cycle of reflective praxis and its associated exemplar project(s). **PW R/Praxis:** In the instance of this RP 10 year cycle concludes with the application of Grounded theory is about coding and categorising ones field notes/learning insights and then aggregating categories until a key or central category is identified then to establish links and the strength thereof of the other supportive categories leading to an emergent MMEALI based local theory of /Artificers/Bush Mechanics and associated definition. THE PRINCIPAL FUNCTION OF THIS STUDY
8. that lead to redesigning current as well as future praxis which braids thinking, doing, and learning (TDL)	**R/P:** Thus current action, commencing future praxis after this cycle of reflective praxis, is modified and understanding thereof deepened through this Design process of P (problematique)	I (idea)	D (design)	I (implementation) &	L (learning) of: reconceptualising, reshaping and undertaking further (TDL) praxis/exemplar projects anew **PW R/Praxis:** Macro structural and process design for the next RP period 2004-2010 and associated contained exemplar projects eg Boat II & potentially Boat III & any social exemplar project/design I am involved in.

Source: P Wildman (04-2005)

Chapter 5 – Theoretical Review - Applying Triangulation for the Reflexive Praxis period 2000-04

Theoretical Sampling
Comparison of Artificer Learning criteria: comparing the Praxis Derived criteria (2000-2003) to the Grounded Theory emergent criteria (2002-2004)

Table 4: Comparison of Artificer Learning Criteria - comparing the praxis derived criteria (2000-03) to the Grounded Theory emergent criteria (2003-04)

No.	Praxis Derived criteria 2000-2002	Grounded Theory emergent principle/criteria categories 2002-2004 of (1) Exemplar Project (2) Seeing the EP as a social holon (3) Linking the EP to the Global Problematique (4) The vitality of learning from the overall process (that braids thinking and doing)
1.	Timeline	GT 1, 4
2.	Resources	GT 1
3.	Uses the 'D'esign not 'd'esign Process: [unique to BM]	GT 1
4.	Deliberatively identifies and concretely engages the Global Problematique [unique to BM]	GT 2, 3
5.	With innovative exemplar prototype projects for social innovation: [unique to BM]	GT 1, 2
6.	Whole project focus with practical attention to detail & interface [unique to BM]	GT 1, 2
7.	Bushies are professionally self reflexive about standards and lessons leant	GT 1, 4
8.	BM's as Prosumers and live on the periphery as comfort pirates: [largely unique to BM]	GT 2 (part)
9.	Is undertaken professionally yet largely in the informal sector	
10.	Reflexive yet objective – the learning critieria	GT 4
11.	A commitment to understand/learn the Artificer Lore, to spread the word and network with other BM's: [unique to BM]	GT 4
12.	Include your criteria	GT 4
13.	Harnesses the X factor:	GT 1-4
14.	BM a subset of Action Learning where philosophy is seen as wisdom in action and trinking and doing are braided with meaning in the rope of being	GT 4

Source: P Wildman 05-2005

Observations on Table 4:
1. There is a 100% overlap in coverage although depth varies somewhat between the two taxonomies
2. The Praxis derived criteria do not put as much focus on linking to the Global Problematique as the Grounded Theory criteria do
3. The Praxis Derived criteria identify learning as much more important than do the GT criteria
4. The Praxis Derived criteria do not strongly identify the need for the Exemplar project to be conceptualised as a social holon cp. the GT criteria.

Artificer/Bush Mechanic – an application of CLA

Causal Layered Analysis (CLA) is a method of undertaking depth futures in that it provides depth or vertical gaze on a particular event or issue. Developed by Inayatullah (1998) in the mid 1990's CLA identifies four layers of depth necessary to consider in any analysis of a particular broad social issue. These are (1) events or litany of day to day actual occurrences and reports thereof (2) systems that generate and in which these events locate (3) the world views, epistems, knowledge views, frames of reference that generate the structures on which the systems locate and (4) the narrative script, story, pattern or myth we tell ourselves in order to hold these layers together and for them to make sense e.g. a

culture could see itself as on a journey of discovery or to respect the elders or ancestors even 'forecestores'. The methodology is ideally suited to complex situations where causation is no longer linear sequential.

The following table (Table: 5) briefly applies CLA to this bush mechanic's project.

Table 5: Causal Layered Analysis applied to the Artificer/Bush Mechanic Criteria

CLA Layers	Application – a BM/A:	Bushie Principle (BP)
(1) Litany	A BM/A is seen as someone who fixes things with fencing wire; wild & woolly, uneducated, does things his way; handy but quaint; jack of all trades, used to be more important – not really needed now, now only usually found in the bush (beyond civilisation) *Here the litany is the BM/A's project as a 'thing', using resources x, y, z and doing a, b & c*	Exemplar **Project** BP 1
(2) Systems	A BM/A is generally is an autodidact ie. self taught, who makes his own, and informal, systems so to speak as nothing else available; agency useful in necessitous times when nothing else is avail. otherwise the system provides specialised answers & consumer items; job seen as fractal interface of many sub & supra systems requiring an overall design as well as efficacious interfacing *Here the 'thing' is seen as a series of interacting & nested systems*	Holon BP 2
(3) Discourse	A BM/A Prosumerist i.e. taking responsibility for producing at least part of what one consumes in order to help yourself and the big picture; technology to be used for holistic ends. *Here the thing is seen as a product of a certain mindset or paradigm*	BP 1, 2, 3
(4) Myth	A BM/A as an artisan is not only ancient yet also post modern using technology for holistic ends. Here we enter a mythic realm where the world the person & their work are braided; concerning, learning, earning, yearning……… *Here the thing represents the vision of the founder so to speak & by vision is meant (a) game, goal, rules & actions; (b) script (c) pattern of interactions that make up the story that the 'thing' simultaneously tells and fits into – like the script for a boat is the sea.*	**Exemplar** Project BP 1; Holon BP 2; Problematique BP 3; Learning BP 4

Source: P Wildman 17-02-05. Based on Inayatullah (1998)

Observations on Table 5:
1. In relation to the research project CLA suggests that disparate litany events, recorded in field notes and learning insights, may not be readily linked as each occurs separately in space, time and content. For instance what do events such as building a boat, altering a house to suit one's disability, doing a painting in a castle one build by hand over 15 years have in common? Answer - underlying systems or processes such as categories such as 'learning' can link these seemingly disparate events. Furthermore underlying worldviews/discourse categories such as the Western penchant separating thinking and doing can help in understanding how these systems retain their validity, valorisation, credibility and legitimacy.
2. In this sense this application of CLA has added a valuable triangulation perspective in understanding the emergent categories and identified the importance of increasing levels of abstraction necessary to move into deeper layers of understanding and causation.
3. BM learning requires a change of story about learning – deep change needed not just at the system or events levels (fixing the shops that fix breakdowns)
4. Exemplar Project touches litany and myth most deeply then systems and paradigm
5. BM/A as a model for learning has disappeared from the top three layers and is only dimly included in layer 4
6. This analysis suggests BM/A is now a bit of a side show or 'blast from the past' or 'lost in space'.

Artificer/Bush Mechanic analysed through Heuristic Inquiry

Heuristic Inquiry (HI) developed by Moustakas in 1990 is a method for enabling inquiry to be made into complicated and complex situations where causation is no longer linear or sequential. And as such it is ideal to interface with CLA. Critically HI also insists on incorporating the inner world of the researcher in the overall research task.

The steps in HI are (1) immersion in a particular praxis – generally over an extended time period of at least several years, (2) incubation as one thinks, reflects and cogitates on same, (3) illumination as one distils various learning insights from ones reflection on ones immersion praxis, (4) explication where one records and disseminates the previous 3 steps and (5) creative synthesis whereby ones praxis for the forthcoming period is altered in light of the explication. It may be that from an artificer perspective, stages (4) and (5) are interchanged, in my view. These original criteria are presented in the following table (Table 6) and then applied to the Artificer/Bush Mechanic criteria.

Table 6: Heuristic Inquiry criteria applied to the Artificer/Bush Mechanic criteria

Stages in the HI process	Time line	Comment	Source Table 3 ref
Immersion	1994-2004	Triggered by bureaucratic experience 86-94 then academia 94-97 management 98-2000 then one key bushie then 3 others 02-04	Row 1, 2 & 3 Para 1-2
Incubation	2002-2004	Access to other bushies, Learning Insights	Row 3 Para 7
Illumination	Jan to Feb-2005	Application of GT, CLA, HI	Row 3 Para 7-8, Row 4 & 5
Explication	March –April 2005	This research report	Row 4, 7
Creative Synthesis	Jan-April 2005	Local Theory of BM/A, r/praxis illuminations for next cycle, publishing, workshopping, implementation/verification	Row 6, 7

Source: P Wildman 17-02-05 * Source Table 3: Application of Reflective Praxis Matrix to Paul Wildman's Praxis 1994-2004 (available on request)

Observations on Table 6:
1. Heuristic Inquiry is useful in tracking the emergence of the artificer learning concept in my own praxis as indicated in the above table (Table 4).
2. Furthermore HI serves in explicating the process needed in this particular research project to provide an overall structure for the development, positioning and processing of the Learning Insight's from Table 3.

NB: Application of the Artificer Learner criteria and Technological Impact Assessment stages is undertaken in BM Generative Principle 6 in Chapter 9

Chapter 6 – Bushie Biodata

Biodata on the Artificers in the research project

Table 7: Artificer Biodata

	MS	RP	RM	DM	CD
Age	45	65	56	60	
Gender	♀	♂	♂	♂	♀
Project	Permission to Shine – reconception-redesign & reconstruction of her life & lifestyle after an ABI in 1995	Science Art Research Centre – const & use	Global Governance	Marine Innovation	
Project Length [with PW/BD]	10 yrs [5yrs]	15 years [9yrs]	25 years [5yrs]	8 years [4yrs]	[BD]
Outcomes	Reconstructed lifestyle, Permission to Shine written & published	SARC completed, now also a 4 star B&B, research work underway	Thesis completed & CART (Communicative Action Research Team) undertaken over a 3 year period	Various race boats & marine innovations – went under the radar 8 yrs ago	Art prop design & construction
Education	Basic	Technical as surveyors asst.	Doctorate in Phil 2001	Technical as surveyors asst.	
Period known to researcher	Since late 2001 [PW 5yrs]	Since late 1997 [PW 9yrs]	Since late 2000 [PW 5 yrs]	Since early 2002 [PW 4 years]	[PW 1 yr]
Bushies Background in BM Project arena	Since ABI in mid 90's	Approaching 50 years	Approx 30 years	Approx. 40 years	Art and sculpturing
Economic position	Basic	Developed	Appropriate	Under the radar	Self sustaining
Joint Activities Level 1 – support Level 2 – Participation Level 3 – Participant in Action Research Proj Level 4 – Joint Bushie Project	Acted as , mentor & editor for her book [L1: Technical support, empowerment & moral encouragement]	Undertook joint research & seminar presentation [L2: Strategic ie. design & presentation assistance]	Developed world public service proposal jointly, member of CART – Communicative Action Research Team - CIVIDA Civic Integrity Dev't Assn – fortnightly meetings 2001-2003, integrity survey of Qld politicians prior to election [L3: particip. in AR Project]	Upgraded my first boat 2002-05 (Fugly) & custom built the second 11-2004 to 04-2006 included concept design, const oversight, & fit out implementation i.e. I | D | I [L4: Joint Bushie Project]	Planning a workshop on Artificers
Bushie Principles Met: **P1: Exemplar Project** **P2: Social Holon** **P3:Global Citizen** **P4: Learning** **(0-10✓)**	P1: 8 P2: 8 P3: 3 P4: 8 Av. 7	P1: 9 P2: 7 P3: 9 P4: 7 Av. 8	P1: 9 P2: 9 P3: 8 P4: 8 Av. 8	P1: 9 P2: 8 P3: 5 P4: 4 Av. 6	P1: 5 P2: 8 P3: 6 P4: 5 Av. 6

Source: P Wildman 17-1-2005 Bushie Project = I | D | I in context of Action Research exemplar project; MS Meriel Stanger, RP Robert Pope, RM Richard Mochelle, DW David Wyatt, DM Don Miller, CD Clairy Dick,

Bushie Backgrounds

Table 8: Examples of Artificers & their Exemplar Projects

Addressing the need for Global Governance. Richard Mochelle, seeing the emerging global governance crisis, has combined Doctoral studies* in the arena of Global Governance with fieldwork; designing and piloting a communicative action community involvement global governance project. Commencing in Architecture in his 20's this current project, commenced in the early 1990's, is a self-funded all-of-life project and has included the production of media, a citizen action group and academic resources. Further, Mochelle [mochelle@acenet.net.au] has 'walked his talk' and 'talked his walk' through the design and implementation of several Communicative Action Research Teams (CART's) – a model for a proactive citizen's group to establish prototype internet interlinked global governance exemplars. * Mochelle, R., *Towards a New Constitutionalism: Developing Global Civic Responsibility through Participation in World Constitutional Deliberation*. 2001, RMITU (Royal Melbourne Institute of Technology University).

Linking Science and Art today for the betterment of human health tomorrow. Robert Pope and Robert Todani have, over 15years, established Australia's first Science Art Research Centre, just outside of Uki in Northern New South Wales. http://www.science-art.com.au/. This involved the artists themselves: conceiving, designing and building the centre; undertaking painting commissions; and continuing the centre's innovative research and learning activities; towards explicating a creative physics modeled on the ancient Greeks: wherein Science and Art; thinking and doing, are intertwined. This has largely been paid for by the sale of the artist's own art. More recently Robert Pope (who originally trained as a surveyor) and his partner Irene Brown established a Bed and Breakfast at the centre, offering painting masterclasses, science-art philosophy courses and Thai cooking. Robert uses experiential learning to link his futures work and art with the present day-to-day activities in the Centre in order to establish a creative physics for a 'healthy' global future.

Community Education today for emancipated Citizens tomorrow. Helen Schwencke has spent the past decade conceptualising, designing, launching and maintaining a Community Learning Association in Queensland. The Association has been a counterpoint to the economic rationalist and behaviourist approach to training mainly evident today (and which has meant the demise of the 'School of Arts' and 'Workers Education Association's' where much forward looking Adult Education occurred in the past). Originally trained in the biological sciences, Helen's [hschwenc@dovenetq.net.au] contribution has been self-generated rather than by external reward. In order to redevelop and transform Adult Learning into something meaningful to adults and communities, rather than simply task competencies, she has undertaken several futures research and community development projects to facilitate Community and Adult Learning for our grandchildren.

Biotech for a better world. David Wyatt is the principal of Novogenesis, a futures oriented Business Angel, Creativity & New Venture Catalyst company he founded in 1998, and adjunct professor graduate school of management Queensland University of Technology. His original field was micro-biology: specialising in children's health. He was previously co-founder of the award winning biotechnology company PanBio [http://www.panbio.com.au/] established in 1987, now listed on the Australian Stock Exchange, and he also held the position of founding Managing Director from 1991 to 1998. Novogenesis is affiliated with the DeBono Institute and the Grameen Bank This has allowed David to achieve his design intention of innovating in bio-technology in order to broaden his investments to social innovation. To this end Novogenesis invests time and seed funds for equity in start-up enterprises that are knowledge based with global market potential. David has embedded critical action learning as a means of disseminating lessons learnt.

Boat designer, builder, racer and championship winner 1983, plus 25 years conceiving, designing and **prototyping a series of marine innovations** to assist in the accessibility of marine pastimes to more ordinary Australians. Also committed to bringing attention to the deterioration in citizens rights brought about through the declaration of ban on recreational fishing in areas covering some 3/4ers of the Queensland Coast (current – South East Queensland). Innovations include a self launch and self retrieval system for trailer boats, no pull anchor, special pod design for maximum hydrodynamic lift from twin contra-rotating motors, spark plug tester and bore inspection method, stainless steel trailer design and construction. *Boating bushies* Don Miller - more info from paul@kalgrove.com

For a decade and with one finger typing a *'disabled bushie'* has redesigned and built another lifestyle for herself after becoming brain injured after falling from a horse. **Meriel Stanger,** now confined to a wheelchair, has had to rethink/redesign and reconstruct her lifestyle for herself and two daughters. She was

approached to be the Event Director of Dressage Queensland to co-ordinate their state championships in October 2004. She is on the Boards of Management for several community disability groups. She also on the Community Reference Group with Brisbane City Council for the foreshore re-development. Not only that, in all this she finds time to write and self-publish a book - Stanger, M., *Permission to Shine - The Gift a journey of recovery and discovery*. 2004, Brisbane 200pgs: Available from the author by email on mstanger@powerup.com.au   or PO Box 2040, Ascot, Qld, 4017. At a cost of $25 for the book plus $5 P&H in Australia and $15 P&H overseas.

Marine Innovation Paul Wildman is the second tier of Custom Power Boats and has sought over the past year to develop an exemplar project that demonstrates several marine innovations. These include – stainless steel trailer featuring self launch and retrieval, readily moveable sub frame for achieving desired weight distribution when the boat is loaded. Hydrodynamically designed motor pod for twin contra-rotating motors, separate instrument pod for navigation instruments. This exemplar project is designed to demonstrate the attributes of a Artificer arising from this research project. paul@kalgrove.com

Source: P Wildman and E Hadkins 05-2004 * praxisers agreement for the publication of these notes gratefully acknowledged

Recent Works by the Artificers directly related to this Project

Miller, D. (1970-2005). has designed and prototyped: *race boat tunnel hull innovations, a spark plug tester for outboards, bore inspection light for cylinder bore inspections while cylinder head is still on, no pull anchor system, drive on drive off system for boat trailers* 1970-2005

Mochelle, R. (1990) Unleashing Genii Ecopolis from the Classroom: an environmental design and action planning project. *Curriculum Perspectives,* **10**(1): p. 69-75.

Mochelle, R. (1995) *Rethinking the Ethics of Professionalism, Citizenship and Work: Implications for Environmental Design*. Catalyst 95: The Design and Environment Conference.

Mochelle, R. (2001) *Towards a New Constitutionalism: Developing Global Civic Responsibility through Participation in World Constitutional Deliberation*. http://adt.lib.rmit.edu.au/adt/public/index.html RMITU (Royal Melbourne Institute of Technology University). 300pgs.

Mochelle, R. and P. Wildman. (2002) *Constituting a World Public Service Network*. Brisbane. p.1.

Pope, R. and R. Todonai, (1988) *Two Bob's Worth*. Loxton, SA: Science-Art Research Centre. 130.

Pope, R. and R. Todani, (1990-2006) Building by hand 'The Castle on the Hill' at Uki Northern New South Wales http://www.science-art.com.au/ now a Bed and Breakfast

Pope, R. and P. Wildman, (1988) Ethical Physics: A Foundation for Tomorrow's Communities. *New Renaissance*, **7**(4): p. 21-23.

Wildman, P., D. Leggett, and R. Pope. (2003) *Human Science Technology: Harnessing Negentropy for Human Survival*. in *Human Science Technology Symposium 18th August 2003 at the Science-Art Research Centre Uki NSW*. Brisbane: Prosperity Press, Sustainability Research Institute, Science-Art Research Centre.

Stanger, M. (2004) *Permission to Shine - a journey of recovery and discovery*. Brisbane: published by the author – Brisbane. 200pgs.

Chapter 7 - The application of Grounded Theory to generate emergent Principles of Bush Mechanics/Artificer

The following are the conclusions of the two year grounded theory project designed to elicit the key emergent properties of artificer learners more commonly called bush mechanics. The full grounded theory report details the methodology and procedures as well as presenting the actual journal entries, memos, initial categories and emergent grounded theory categories as they emerged. Those readers interested in these research design and procedures are directed that particular report (below).

Source: The following (Ch 7) is extracted from - Wildman, P., *Bush Mechanic Action Research Project - Coding Outcomes from applying Grounded Theory to identify key attributes of a Artificer/Bush Mechanic Learner as an exemplar of Anticipatory Action Learning/Futuring/Artifice Learning with a view to establishing the basic principles for further development into a Local Theory thereof.* 2005, Kalgrove Pty Ltd - Bush Mechanics Institute - Research Project Report No. 3: Brisbane. p.35pgs.

Key Theoretical Artificer Principles (BMP identified in the research project)

As a result of this Grounded Theory Action Research Project conducted from late 2003 to early 2005, Artificer may be defined as someone who demonstrates the following attributes. NB: as indicated previously Artificer may also be called Artificer or a process of Futuring. The Four Attributes revolve around the grounded concept of the 'exemplar project' and hopefully can provide the basis of a new 'theory of Artificers', as such the attributes point to a grounded form of vocational and citizen education that has almost faded from view in developed nations in the past 50 years. Bush Mechanic Principle (BMP).

Participant inclusion: involvement and feedback cp. participation

Once the project was well under way I gave formal and informal feedback to the participants then as the project concluded in late November 2007 I gave formal feedback to the participants and solicited their comments for inclusion. This aspect of Grounded Theory is often seen as a weak point in that somewhat unlike Action Research GT often does not overtly involve the participants to the same direct extent. In this regard the GT process used in this research project has some similarities to convergent interviewing where overlaps between interviewees provide a category analogous to the 'grounded theory' emergent category. Dick (2007) see section on Theory Building.

This eBook acknowledges this critique, and rather than counter this critique this research project sees the link between Action Research as generating much research on the ground so to speak and Grounded Theory as taking these outcomes and working them into a form of local theory so to speak. There remain few articulated approaches to this theory building as Dick's (2007) exemplar work attests to.

This work does not overtly seek to address this weakness. Rather it formally sought to include participant feedback at several points in the research project:
(1) At the beginning when emergent categories were fed back to the participants for comment,
(2) Towards the middle when participants were involved in a seminar inc. presentation on the research project and its outcomes as well as the relevance of these outcomes to their praxis. This 'grounded research in progress' type seminar entitled *Artificer Learning: a workshop for and about Artificering* and was organised by Bob Dick and myself in

conjunction with the Action Learning Action Research and Process Management Association and the Brisbane Hot Futures Group. It was run on Saturday 06-08-2005, (3) Towards the end of the research project (11-2007) when some six participants, and a similar number of, viz. five, others who were directly involved in the research project either as partners of the artificers for as organisers/supporters of the workshop and concept, were supplied with an overview [Lee Martin (2006)] of the research outcomes and their comments were included in the final report i.e. this eBook.

The Artificer and her data engine - will travel!

For Dick (2007:22) has proposed a 'data engine' to address gaps and overlaps identified in grounded research and action research projects via. convergent interviewing ~ the *Artificer* and her *data engine* nonetheless.

This 'data engine' which drives the process of action oriented inquiry can be viewed for Dick (2007:22) as a set of decision rules/steps:

1. **Compare related data sets** ~ a data set (perhaps a set of interview notes) to another data set, or (after early interviews) to the emergent theory.
2. **Note overlaps and differences between these data sets** (ds) i.e. interviews or between interview and emergent theory. Overlaps will consist of agreements (POA - Points of Agreement) or disagreement (POD - Points of Disagreement - Gaps), an agreement is where both sets mention a topic and do so compatibly, for example that 'teamwork needs improvement'. A non agreement occurs when both mention the same topic but incompatibly. For instance one ds may identify teamwork as needing improvement, and the other ds as a strength of the team, whereas a 'disagreement' is where for instance a ds identifies teamwork (the same team) as sound
3. **Probe for exceptions:** Where there is agreement probe for exceptions (in the same interview, or in subsequent interviews). The exceptions, when found, then constitute a disagreement.
4. **Probe for explanations:** Where there is disagreement probe for explanations. 'Some say teamwork is good. Others say it requires attention. Help me to understand how this difference arises.'
   Summarising: the process can be viewed as a dialectic which uses apparent disagreement to generate agreement at a deeper level.

Such an engine behaves broadly similar to 'convergent interviewing' and also links to Grounded Theory in that by step 4 the emergent GT category would be emergent.

Although acknowledgeably still somewhat retrospective and even reactive it is hoped that these three aspects of involvement go some way to respect and address the Action Research critique of Grounded Theory. So in this sense this research project sought participant feedback on the grounded categories that emerged from the research. Such a 'deep' feedback process may go someway to respond to Dick's (2007) critique.

BMP 1: The Exemplar project Principle - *Components*

BMP 1.a What is and isn't an Exemplar Project (EP)? [The EP: (1) defined; (2) & the human body; (3) & inner balance; (4) as concrete narrative; (5) when is enough is enough (?); (6) enter the elder; (7) holistic circular intervolution; (8) & the esoteric Artificer; (9) historical and futurorical track; (10) *sauvage* diet; (11) as esoteric lens; (12) getting the Gestalt; (13) as strange attractor; (14) & the UFO; (15) as meta-strategy; (16) for emotional wellbeing; (17) as a Folly House

 (1) Initial definition of the Exemplar Project
Thus Exemplar Project simply put is *a futurama*, for the purpose of this e-book means *a holonic multi system interfaced* deep service longer term project which is, anticipatively and participatively 'D'esigned and enacted which, exemplies ones raison detre** using appropriate technology with a minimised footprint*. For example the TV Cartoon series Thunderbirds was a 60's futurama, a project that draws from the BM's learning over a

decade of praxis as in broad committed experience. [NB: *futurama* is direct reference is to the 1939-1940 New York World's Fair, whose tagline was a promise to show visitors 'the world of tomorrow'. The most memorable exhibit at the fair was the General Motors Pavilion, and the most memorable feature in the General Motors Pavilion was a ride called the Futurama. People stood in line for hours to ride it and experience the exciting snapshots possibilities of life in the distant future —the year 1960 - a futures oriented moving diorama.]

This praxis has helped generate a grasp of the big picture while understanding the small picture from its components in detail, as well as how the sub systems interface. It may be said that in post modern terms 'when all is simulacra the exemplar projects potentiates the real, thereby spiking the ontological shift from Learning to Education to Entertainment. In this sense the Exemplar Project resists the commodification of experience into passive consumption. Thus the EP challenges the ubiquitous replacement of history and experience with spectacle by positing an interactive relationship between self and the EP (as other, yet related other).

Many of the next dozen or so aspects are beyond the scope of this e-book and can be skipped over, they are however presented here (1) to illustrate the breadth and depth of the concept of the artificer and how this phenomena reaches back and out in time and (2) to show how historically, psychologically and evolutionarily the split between thinking and doing and the split from the organic/animal world from the human has been very recent (maximally 2 of the past 50 thousand years).
[NB: Holo-n (every thing is simultaneously a whole and part of another hole as in circulation system in the body is at once a system in itself and a subsystem in the body) has quite a different meaning to holo-graph (every part has the DNA embedded in it to make every other part and thus the whole itself) and the meaning for holonic here is derived from holon a' la Koestler, not holograph]

(2) Aspect 1: The human being, both body and mind, is made for and needs to do, Exemplar Projects
The human body needs exercise cognitive and physical and the visceral manner in which the EP integrates both is 'just what the doctor ordered'. For instance physical movement such as walking actually acts as a heart and pumps the blood around the body through various non return valves in the body's arteries and veins. Humans are built for work in the aletheia sense used in this e-book.   In many ways we are still Neolithic, even Palaeolithic and are made for a diet of roots and berries with some meat and expending the energy of walking 40km per day. Both hunting and gathering individually required the integration of thinking and doing.

The braiding of physical and mental activities braids the exoteric and esoteric meanings of life so to speak and the EP is an excellent 'attractor' for such energies and as a side effect we get a healthier body. Clearly in expecting such energy outputs for the EP outcome we must be prepared to respect the body's food and calorific input requirements.   A great enemy of such healthy inputs are deep fried foods, sugar, white flour and of course no exercise.

(3) Aspect 2: The exemplar as mobius - an outworking of inner balance and vice versa - the psychology of enough
An Exemplar Project is an outworking of an inner balance. It means having an understanding of ones 'real' needs and interactively matching that with external activity. This then is meeting Shakespeare's challenge to 'know thyself'', for instance through community service, meditation, reflection on ones relationships, ones past and future etc. In fact as one proceeds through the EP process including keeping ones learning insights journal etc., the external world starts to impinge on this, ones inner world so the EP can be seen as one way of 'doing yourself' and 'being yourself'.

This may be represented as the mobius strip of an infinity cycle folding back into itself i.e. intervolving, where the inside becomes the outside and the outside the inside.

(4) Aspect 3: The exemplar as narrative

The intervolved stories the Artificer likes to tell and retell one are intimately involved with the Exemplar Project. In fact to the Artificer the exemplar is concretised narrative. This harks back in many ways, it maybe suggested, to time when narrative, especially oral narrative, was crucial in conveying the principal heuristics necessary for the manifest exemplar. I have found this particularly difficult to adjust to as often one can see this sitting at the end of the day telling stories for an hour or more as a 'waste of time' - quite the reverse it is a window on a crucial part of being human which in turn harks back and forward to a long lost art and a long distant time when textuality was secondary to orality and thus narrative, in the transmission of truth.

We loose a language or dialect from mother earth every two weeks the rate of language extinction is a crime equal, in my view, to species extinction. So that in the 25 years since Ong wrote his masterpiece around 650 of these languages (and over a thousand dialects) would have been lost as well as several of the 78 written ones (calc done in 2007-PW). Most, if not all of these are oral, non-textual. Ong (1982:7). And with them goes yet another ontology that is organic, embedded and melds thinking and doing. For in our culture without text there can be no 'H'istory only 'm'yth.

(5) Aspect 4: The Exemplar Project an external expression of 'Enough is eNough' or 'eNuffing'

So that Artificing is also about knowing when *enough is enough* and to balance say an Exemplar project with other needs of family and friends and caring for our 'footprint' in the environment. One needs to be a 'situated citizen'. It is about constrained intentional consumption a strong counterpoint to wilful largess. In this sense Bush Mechanics are 'eNuffers' as a colloquialisation of 'enough' i.e. they/we believe in, and seek practice *enough is enough*.

Empirically the Exemplar Project writ large and comment may be seen as e*Nuffing - a 'gestalt' which is an internally-externally-environmentally balanced collective form of bush mechanicing*. As such it is one of a number of 'dematerialisation' lifestyle modulation forms, such as simple living etc, beyond mere hyper consumption. Examples include: (1) Downshifting http://downshifting.naturalinnovation.org/ Australian - basic site; (2) Frugal For Life http://www.frugalforlife.blogspot.com/ great site + links to other sites; (3) Frugal Journal for Newbies http://www.freelancebyu.com/newbies.htm ; (4) Frugal Village http://www.frugalvillage.com/ ; (5) Go Off Grid http://www.off-grid.net/index.php ; (6) Money and Values http://moneyandvalues.blogspot.com/ inc. ethical investment; (7) Rational Simplicity (US based) http://www.rationalsimplicity.com/ inc. appropriate technology; (8) Simple Living Network (US based) http://www.simpleliving.net/main/ , and some would argue (9) Neo Neolithic: the belief that the planet and the human spirit cannot sustain technological development, and that we should return to the peaceful, environmentally sound and simple technologies of the Neolithic period - http://johnlobell.com/PrattCourses/220Tech.htm ,this eBook however modifies this in the belief that Gaia cannot sustain technological yet can sustain technelogical development and that we need to turn away from the increasingly massive large scale developments of the business as usual scenario and return forward to the participative universe with its peaceful and environmentally sustainable processes (not the simple technologies) of the Neolithic period processes such as Artificer Learning and Exemplar Systems Development.

Further eNuffing needs must have some external 'objective' authentication. One such system is the ecological footprint -

http://www.epa.vic.gov.au/ecologicalfootprint/calculators/default.asp ,
http://www.iisd.ca/linkages/consume/mwfoot.html of one self, ones lifestyle, key events, suburban footprints etc. (e.g. a eNuffing lifestyle would have a smaller ecological footprint than conventional ones).

Although the psychology of enough, achieving the internal balance, external lifestyle links, footprint analysis and eNuffing links are attributes and potential attributes of the EP they remain beyond the scope of this e-book, and have been included here so as to insist that the EP is not ever just an external activity - rather it is an individually and socially holonic activity. Wildman et. al.(2007).

(6) Aspect 5: Enter the Elder
A key extension even transcendence of the Artificer is the Elder. This extension is beyond the scope of this eBook. The Elder in this sense represents the personalisation of wisdom in action as exemplar in the role of mentoring while choosing ahead wisely. Clearly a further link as exemplar lifestyle is living with in ones and ultimately Gaia's means knowing when enough is enough.

(7) Aspect 6: The Exemplar Project - Holistic Circular Intervolution
The Artificer process with its Exemplar Project as the strange star attractor tends to *integrate, interface* and *intervolve* (to roll, wind or involve one within another) its various components and processes one of course which also includes the Artificer/Bush Mechanic herself as a component. So that in this sense the Exemplar Project becomes, as it were, the 'client' or 'customer' it adopts a certain 'life of its own'. Separation of policy and practice are not possible as they are themselves braided intervolved processes within the overall EP. As such the Artificer has to ensure to respect the integrity of this 'work of artifice' especially the interfaces. He or she cannot walk away from overall responsibility and leave the work to someone else.

Generally speaking the artificer may be seen in the progress from citizen to apprentice to tradesperson to master tradesperson to artisan to artificer to citizen. Ordinary human life, the vernacular, requires day to day integration of a house of different aspects of life as well as deep and shallow understanding of same all in order to meet ones intent. This is very much in line with the artificer. The artificer does not seek to be an expert he or she seeks to remain a citizen and let his or her exemplar project do the talking.

(8) Aspect 7: Postcards from the Past and Hope for the Future 1 - Dimensions of integrating Thinking and Doing enter the Esoteric Artificer.
Etymologically pagan means localist or villager or rural person. More recently it means simply one who is not a Jew, Christian or Moslem. In many ways the successful bushy or Artificer is a localist or villager so there is a strong linguistic clash from the outset in this regard. In this sense there can be an esoteric dimension to the Artificer, a dimension that can be pagan or Christian, or Buddhist (Zen) or Sufi or Kabala for instance.

To unravel these dimensions somewhat we need to travel back in time to prehistory. As indicated elsewhere in this e-book the gap or schism today between thinking and doing seems unbridgeable, however this was not always the case esp. in pre-literate or more correctly pre-textual societies based on oral narrative. These Palaeolithic and (early) Neolithic societies starting well before the last Ice Age and still have remarkably recent echoes in our own culture even as recently as say the 14thCentury in Europe and especially in Ireland and Scotland. These were pagan times and pagan people. These were the times in Europe of the Black Death and the Dark Ages (fall or Rome in 500AD to 1000AD) and the Middle Ages (1000AD to 1500AD).

Today in the west Pagans have got a very very bad press and it is <u>beyond the scope of this e-book</u> to provide an apologia for these our most crucial ancestors, suffice it to say that interest in the macro historical implications of separating thinking and doing it becomes unavoidable to make this link. Pagans not only linked thinking and doing in day to day life inc. for instance learning/apprenticeships in the ancient sense, such that they embedded themselves in the 'natural order' they also embedded themselves in the animal order and worshiped wolves, eagles and snakes and so forth. Here we engage Animism and Totemism and ultimately Pantheism. Historically the three Abrahamic religions (Judaism, Christianity and Islam)have had very recent emergence 21/2 millennia at maximum and maintain a most uneasy 'peace' with such beliefs which predate the 'either or' dualism of mutually exclusive interfaces embedded in the Great Transition that led to modernity starting some 4-6000years ago as we enter the middle Neolithic age.

Many would argue that at least one key dimension of the inquisition and burning witches was the Christian reaction/response to such paganism (as well the little recognised phenomena of the guilty party forfeiting their property to the church), as well as the Judeo-Christian belief that man is closer to angels than animals and that 'he' should have patriarchal or separately yang/male principle 'dominion' i.e. power over creation, and not pagan even matriarchal or separately yin/female principle 'power with'.

To my mind this is an oft undiscussed aspect of the Protestant Work Ethic that underpins scientific concept of 'objectivity' that for the Industrial Revolution to occur the way it did and for science and technology to have their paramount place as drivers of social change in the West today a fracturing of this pagan link between thinking and doing was de rigueur.

(9) Aspect 8: <u>Postcards from the Past and Hope for the Future 2</u> - Keeping in mind the historical and futurorical track of the Exemplar
From a Neolithic and 'Western' perspective the 'smithy' and his projects were exemplars even magical productions. The blacksmith/goldsmith lived on the outskirts of town and was seen as a wizard/magician/priest. Such productions included Newgrange (3200BC) and Stonehenge (3000BC) as well as bronze ornaments and swords etc. several hundred years, even half a millennium, before the Pyramids. So in this sense the wizards apprentice may well have been a blacksmith - what we know to day as a craftsman. And to my mind its modern day ultimate expression in Chartres Cathedral 1200AD built without measure or plans or common language or chief architect - in many ways the last massive Megalithic structure. In those days science medicine and magic all intervolved - key practitioners of these esoteric exemplar rites were women, cunning women who ultimately would become 'witches' and millions would be burnt at the stake

This has tragically been the end for much of the craft and practisers of same of ancient times as the cognitive knowledge was usurped from the common people and appropriated by the elite the priest class the clerics the scribes whose echoes are today in the academies. While the rank and file became mere 'operatives' of the mills. Thinking and doing inseparable in the Neolithic period indeed in 95% of our history as a species were torn asunder and the latter pejorated. This is not to establish a conservative pro Exemplar argument though this can readily be undertaken, rather it is to argue that the exemplar is part of what it is to be human - the eternal now. Wildman (1996), Wildman and Blomeley (1998). And in this sense we can see the same spirit in folks now called 'computer nerds' as they build, program and hack their and others computers.

(10) Aspect 9: <u>Postcards from the Past and Hope for the Future 3</u> - What is an Exemplar Project/Artificer diet? Enter the *Sauvage Diet*
Other names: Wildman diet, field diet, (future) primitive diet, also alkaline acid balance diet. An alkaline diet is a diet that emphasizes, to a varying degree, fresh fruit, vegetables,

roots and tubers, nuts, and legumes. What then is the History of Alkaline Diets? For millennia our hunter-gatherer ancestors consumed a diet which was substantially alkaline and thus very different from what's typical today. The diet was based on raw and minimally processed plant and animal foods. This was the way of our Palaeolithic and Neolithic forbears Sauvage Diet say 10 millennia ago, the way of the Wildman diet.

Over the past several millennia with the advent of agriculture however, the standard Western diet changed greatly and its acidity rapidly increased. For instance:
- **Grains** were introduced into the diet after the appearance of stone tools. Refined grains were available after the invention of automated rolling and sifting devices.
- **Milk,** cheese and other milk products were introduced with the domestication of livestock.
- **Salt** consumption rose when technology to mine, process, and transport it became available.
- **Meat** consumption increased with animal husbandry.
- **Sugar** consumption has risen since the beginning of the Industrial Revolution.
- Almost all foods that we eat, after being digested, absorbed, and metabolized, release either an acid or an alkaline base (bicarbonate) into blood.

These recent additions to our diet especially sugar and processed grains, fish, meat, poultry, shellfish, cheese, milk, and salt all produce acid, and heaps of it. So the introductio and dramatic rise in our consumption of these foods meant that the typical Western diet became more acid-producing.   And then to make matters worse consumption of:
- **Fresh fruit**
- **Vegetables**
- **Unprocessed/Raw foods** inc. dried dates and figs

All decreased, which further made the Western diet even more acid-producing.

Our blood is slightly alkaline, with a normal pH level of between 7.35 and 7.45. The theory behind the alkaline diet is that our diet should help the body maintain this pH level (as it did in the past) and be slightly alkaline. Proponents of alkaline diets believe that a diet high in acid-producing foods is disrupts this balance and promotes the loss of essential minerals such as potassium, magnesium, calcium, and sodium, as the body tries to restore equilibrium. This imbalance is thought to make people prone to illness including some would say even cancer.

Authors such as Wildman A (2000) and sites such as http://www.essense-of-life.com/info/foodchart.htm can help us make the distinction between acidic and alkaline foods and get in touch with a 'bushy diet'. This helps concentration, energy levels and most importantly fine motor skills such as hand eye co-ordination so necessary in Artificer work as we build the Exemplar Project.

Clearly for the artificer the nutritionist, the physiotherapist, is as important as the psychologist and refining fine motor skills as important as writing a doctorate.

(11) Aspect 10: <u>Exoteric Connection 1</u> - Through the Looking Glass - The Exemplar as esoteric lens
When I was an academic I suggested to key students undertaking a research cp. coursework degree that they consider doing in parallel or sequence with their conventional thesis an esoteric thesis relating to how the research process has deepened their consciousness. Wildman and Cundy (2002). As such these these's need not be long or even extensive rather brief and intensive say even a dozen pages. Esotericism is a case of 'reductio ad absurdum' and may I say 'expandio ad absurdum' that is 'infinite regress' so that no matter how much one reads or how many workshops one attends one is only ever scraping the

surface. Further there are myriads of esoteric schools, many associated with conventional religions that sometimes have contradictory principles and actions.

For this e-book I have included this section simply to illustrate that in some ways in some regards it may be efficacious to regard the Exemplar as Alice's mirror to wonderland as a lens whereby the mundane can be seen in another light. Please note I am not saying the lens is to be used to escape the mundane rather the lens is to be used to approach deeper meanings in the mundane, in the Exemplar. I make no claims to deep or broad understandings of these matters. **Readers please note** that esoteric considerations of the Artificer are beyond the scope of this e-book. Further outlines of the following section can be found in Wildman (2007) BMARP8.

Sections of this e-book that relate to the idea of **Exemplar as esoteric lens** may be found in various locations in this work inc.: (1) Advocating the concept of the **Esoteric Thesis** - Wildman and Cundy (2002), (2) this section - **Through the Looking Glass**, (3) **Reflective Practice** - Wildman (1995), (4) **Evocative questioning and reflectioning** on ones field based Learning Insights Journal, (5) **Heuristic Inquiry** - Moustakas (1990), the (6) **DemiUrgic Field** (DUF) of manifesting form, Sheldrake (1994) and Wildman and Miller (2004), (2006), (7) **Masons and esoteric artifice** - Appendix D, and (8) **the Singularity** - an exoteric dimension and separate esoteric dimension.

Exoterically the Greeks and later the Masons sought only to build with Dividers, Straight Line (Ruler without marks) and the Pencil. Esoterically these may be seen as Equality (dividers draw circles), Fraternity (you can join two dots) and Liberty (pencil wrote the American Constitution). Many, and not all, of the tools we have today are extensions, intensions and dimensions of these three. Certainly confining ones tools to these to build the massive and elegant buildings of the Parthenon insists that techne not techni are uppermost in the Master Artificers toolbox.

Things dual by Nature are three by Principle - here the spark between for instance an idea (or monad or intent) and its manifest form creates this third principle. Like the spark or chemistry (chemystery/alchemy) between Yin and Yang. So the creative energy between the artificer and his or her Exemplar creates a third principle

The *plane of manifest form is hoe God becomes conscious of herself as* 'the one' can be aware of herself as there is nothing outside the one. Thus the monad becomes conscious of herself through the artefact of the plane of manifest for i.e. through creation. So in this sense the Exemplar, and its construction, is an illustration of the esoteric principle of God becoming self aware. As a subset this is one means whereby the artificer becomes conscious of her/himself.

The parts are in the one and the one in the parts. When undertaking the Exemplar a key epiphany I had was that washers have two sides. Blisteringly mundane this may be however for stainless steel washers in particular they are stamped out of flat sheet (of various thicknesses) and usually with the shiny side up resulting in the top shiny side having curved edges and the bottom sharp edges that can sometimes cut ones skin and that are not as visually or aesthetically appealing. I had only ever been used to washers having two similar sides and so to be confronted with this was quite profoundly disconcerting as the placement of washer's correct side up is a worthy contribution to the overall appearance and aesethics of the finished product. Ultimately I could not distinguish between this insight and the most complex electronic aspect of the one overall vessel/project. Clearly the parts (washers) are a crucial part of the aesethics and functionality of the one and the overall aesethics of the one can be seen in having the parts i.e. the washer's right side up.

It has only been after reflecting on this first exoteric realisation (washers have two sides) and undertaking further reading and workshops that this deeper esoteric meaning has arisen, however I still recall the epiphany that I had when earlier in the field I realised the link between the washer and the overall project, without at that time understanding its esoteric meaning.

Esoteric arenas include: numbers, patterns, progressions and correspondences. In an Exemplar all of these are crucial esp. the last three and in particular the last two. Here as one progresses from one component of the Exemplar to the next these components must interface so they correspond in a way that contributes to the overall efficaciousness of the project. A huge amount of energy needs to be allocated to such correspondences via. interface at all levels and between the various sub-components of the Exemplar.

Wisdom can come from the ground and to the ground. Here it is not only arcane theories of the esoteric that one must seek to actualise on ones day to day world -the world of the Exemplar Project - this exoteric mundane world can also 'influence the heavens'. It is this latter more organic method of innovation, wisdom and consciousness expansion that the Exemplar favours.

Evocative questioning can release the genie where as analytical questioning keeps her in there so as to better study the genie phenomenon in the lab. Heidegger (1977) strongly advocates the use of evocative questioning based more on 'how is it that….?' Cp. 'why is that…?' For Heidegger such questioning allows the revealing or *aletheia* of deeper meanings and attributes of that under study.

While the above are arenas for esoteric insight are like specific windows in a Christmas diorama, they do not of themselves represent an esoteric path itself nor does the artificer seek to represent itself as such. The exemplar is at essence exoteric looking in on esoteric. It may be that an esoteric path has 'transformative service' as part or end point of its stages and as such a novice may then engage in the Exemplar however the Exemplar is exoteric and designed like the economy to be of direct practical use to ordinary people in their/our day to day lives. Nevertheless and notwithstanding all the above, for the purposes of this e-book the exemplar remains exoteric, embodied, mundane, vernacular, firmly grounded in its 'I'dea ~ 'D'esign ~ 'C'onstruction ~ and 'U'se in and from Gaia as well as service to her and her inhabitants.

(12) Aspect11: <u>Esoteric connection 2</u> - Components of an Exemplar Project - getting the Gestalt

The Exemplar Project is in effect a harmony of interface in inner balance, outer footprint, recycled materials, conception, design and implementation, a Gestalt in the Artificing process which has the Gestalt of the four principal characteristics inc. importantly self fabrication, in a project towards a better world. Most design these days occurs for small sub sets of the world system eg. a building or a road it does not occur for collectives like community or city or nation etc. Edwards (1995:4), Jantsch (1975). Technological and social innovation and sustainability relates to this principle. Possibly Jantsch (1975) would see the whole system design of culture as one grand exemplar project in the spirit of the Artificer.

Much fabrication occurs to set plans, prescriptions, isolated tasks and sub-sets somewhat exclusive of the big picture a little like changing a tyre, battery in a car or IC board in computer. These are of themselves not Artificer projects rather designing and building the car largely from scratch to suit particular needs, fixing a tyre for the context of a bigger project which the car will be used for these more closely align with the requirements for Exemplar Project.

Furthermore these initiatives are oftentimes anti citizen in terms of citizen rights and participation rather than being pro citizen and derived from the citizen. Progress here then breaks from the Baconian view of that of modernity wherein progress is seen as uniquely obtained by the application of science cp. normative techniques. Berneri, M. (1982:129). Social design and innovation are left stagnant while technological innovation runs wildly ahead nowadays converging with Genetics, Nanotech and Robotics. In short the exemplar project may be seen an anticipatory action learning project as an exercise in futuring.

(13) Aspect 12: <u>Esoteric Connection 3</u> - The exemplar as a 'positive strange attractor'
The exemplar can demonstrate that a better world is possible tomorrow for our children's children. This can have the effect of acting as an attractor and since it is positive it is indeed in our times a strange attractor. In effect Martin Luther King was a strange attractor and his ability to posit 'I've been to the mountain top' and then he brought back the promise that in civil rights there could be a better tomorrow for all our children's children. A term I have coined for this is Futuring - proactive action learning based futures oriented practical projects today.

In (Physics) chaos theory a strange attractor is 'a stable, non-periodic state or behaviour exhibited by some dynamic systems, esp. turbulent ones, which can be represented as a non-repeating pattern in the system's phase space'. Yet these non-repeating dynamical system do produce patterns such as the Lorenz attractor.

Thus an exemplar can act in these cultural and scientific ways of positive attraction for energies to take the prototype forward.

(14) Aspect 13: <u>Esoteric Connection 4</u> - What happens when we don't believe humans can 'do' the Exemplar - enter the 'exemplar' UFO and its alien artificer
Many folk forget today our engaged heritage were thinking and doing were blended and inseparable for millennia. This often leads folks to reject the idea that our pre-historic ancestors could have built Newgrange, Stonehenge, the Pyramids and so forth. They had no writing (and thus no mathematics sic!), no common language, no calculators, no astrolabes - in short they had little cognitive ability so how could they do it with their bare hands and growly teeth? No way they didn't but UFO's did. Bizarre as this may sound it's the latter that gets airtime on the History Channel not the Artificer. Let me assure you of that.

It's like modernity's version of 'species cringe' without reading and riting and rithmic i.e. the 3R's there is no thinking and without that there can be no civilisation and its markers. Without cognition as denominated by modernity we are not fully human.

In this e-book however the reverse position is strongly advocated that is that our humanity is expressed through the exemplar project and as such modernity with its separations and specialisations and regimentation and so for effectively prevents such express and pressure cooks our humanity to say ultimately that 'yes master' it couldn't have been us it must have been the gods in UFO's. Not Me but They.

In this sense Modernity has usurped our humanity ~ but ~ exemplars we must have even if we have to invent them and their alien artificers.

(15) Exemplar as concretised Meta-Strategy through the P-I-D-I-L 'D'esign process
In this sense the Artificer P-I-D-I-L process of prioritise-idea-design-implement-learn is a meta-strategy in that it covers strategy and implementation in a Mobius loop so to speak. Here meta-strategy is used in the sense of a strategy about how to make strategies.

(16) Exemplar Project and our emotional well-being
A recent retirement report in Australia found that people who participate din purposeful activities that are, where something is made, achieved or where a community/mutual aid type service is provided, had much lower rates of depression and anxiety and higher rates of satisfaction. In short an hour spent in the garden or kitchen is exercise for both mind, body and spirit.   In fact over 1/3 of Australians indicate their preferred activity in retirement (I prefer to call it protirement) is 'to take up a hobby'. In effect to an extent the present day relevance of the Artificer can also be to a boomer audience of protirees.
ClearView (2007:7-13)

(17) The Exemplar as Folly
In the UK and to an extent in the US there is a concept of the 'folly house'.
[http://www.shelterinstitute.com/tips/designfolly.htm]. Here one can express ones 'whim', 'whimsy' or eccentricity through the construction of what is called a 'folly house'. Often on large estates there will be a delightfully eccentric small house/structure off to one side that at first seems not to 'fit' and to be a waste of effort even a touch ridiculous. Such have been termed 'folly houses' and can serve as tea houses, studios, retreats, poet's lair and so forth. Principally designed and built well, though often not conventionally, these follies can become aesthetically and even functionally useful. Certainly they are a statement of the individual and her predilections, hopes and character. Almost always the Artificers Exemplar Project will be seen as 'sheer folly' something that maybe a good thing - within reason of course. In fact often times innovations and inventions are in this regard 'folly' at first as they don't 'fit' in with the existing range of processes and products indeed much like their originator!!!! (sic!).

Arenas for the Exemplar Project for this e-book

Arenas where thinking and doing are linked even braided and intervolved and melded include: the acts of 'innovation by fabrication through techne' in the (1) garden, (2) kitchen, (3) laboratory - in the traditional Universities and for instance CSIRO, and of course (4) the shed, as well as the (5) field inc. community collective/social holon and is very low as community is often controlled and funded by Government, rather than corporate and military although these groups can use artificer principles in their operations and R&D e.g. the veritable 'skunk works', (6) surgery, (7) the church as for instance in the Tibetan Buddhists sand mandala's.   Most folk know of the Artificer as essentially the shed from an engineering point of view. This is only one area albeit an important one.

Music is a fence sitter in terms of the technical definitions of this e-book. Much Western music, even rock and rap, remains strongly cognitive and it is only in the indigenous beat that blends grove and solo into pulse. Pulse is visceral. Nevertheless although indigenous music comes closest to Artificing neither directly change the physiosphere and as music remains a fence sitter. In some regards some forms of (6) indigenous music esp. singing as one builds something for instance can in my mind sit 51% on the side of Artifice.

My limited experience suggests, for Australia/Western society in 2007, an indicative distribution of (1) 20%, (2) 25%, (3) 10%, (4) 25%, (5) and (7) 3% each (excluding military), and (6) 15%. And as a very approximate estimate this 'innovation by fabrication through techne' today would comprise approximately 25% of fabrication whereas say three centuries ago it would have been more like 75%. The reader may, like me, find it surprising that this fabrication mode persists to the small but significant extent it does in its rather 'shardistic' non coordinated manner. But in my view application of the four principles say otherwise - the artificer continues against all the odds though at decreasing volume. Please note this is an extremely simplified distribution based on my limited experience plus one person can be in several categories so that double counting prevails.

Evidence suggests that the kitchen, although increasingly a spectator sport, remains the key zone for the artificer, closely followed by the garden. The traditional Artificer comes in a poor third and in my view continues to fall behind.

The Bush Mechanic as a Sub-Altern

The exemplar project often occurs in the sub-altern largely informal economy. Indeed the Bush Mechanic is in many ways in a sub-altern relationship with primary R&D and technical innovation processes in society. The Artificer is one of the voiceless innovators in society. Here the Artificer becomes a site to problematise the dominant discourse of economic development and innovation. This then is how Gramsci sees the position of sub-altern.

Again this is a term from Gramsci. In The Modern Prince (1957) and The Prison Notebooks (1992) Gramsci describes the subaltern classes as those subordinated by hegemony excluded from any meaningful role in a regime of power. Gramsci himself has workers in mind (the sub-altern class), but the term has also been used to describe other groups who are excluded and do not have a position from which to speak--for example peasants women.

The sub-altern exemplar project operates with business discipline, vocational expertise and social context, that braids thinking and doing; part and whole; individual and collective, all into 'being' as in a manifestation of the human 'being' of the Artificer and is aimed at bettering the lot of our fellow human in line with the requirements of the global problematique.

* interface – critical part of synthesis cp. analysis which by definition is about deconstruction. For interface dimensions see next section
**the purpose that justifies ones existence – avocation – calling

BMP 1.b Interface as Grand Synthesis – Depth, Breadth, Context and Agency

Interface is a form of *synthesis* (combining of separate components into a coherent whole from the particular to the general)/*integration* (the process of combining various components into a state of completeness and harmony) and organically terms such as *symbiosis* (interdependency between dissimilar organisms)/*co-operation* (joint association for a common benefit) and *mutual-aid* (arrangements between individuals or organisations to achieve a common end). Interface in this sense draws strongly from the structuralist (with physical rather than linguistic elements) and post-post-modernist perspectives that the inter-relation of parts/component structures, in a gestalt pattern language is more important than the parts themselves and that modernism with its post modern analytical noosphereic critique needs to give way to the synthetical and practical physiospheric again. Here project facets can be seen as layers and design can be to a degree 'organic/incremental/emergent' therein.

To this extent it is post-structualist however in a 'technical' sense, in engineering type cp. architectural projects, it is critical that form closely fits function with several but not unlimited degrees of freedom. In this sense authors such as Turner (1996) and Alexander et. al. (1977) see such patterns assisting designers to handle complexity, and can be 'de novo' or adjusted incrementally from 'rules of thumb' for instance.

Furthermore **Interface Agency** has emerged as an absolutely crucial as one can know of the interfaces and potentials yet not have any 'authority' | 'discretion' | 'professional autonomy' | 'discretion' | 'agency' to do anything about it or even more concerning any responsibility to watch out for malfunctions in such interfaces. As machines become more

and more complex and 'intelligent' an emergent crucial interface gradient is the transition between 'human' control and 'auto-pilot' control as it were for instance especially in planes and several fatal aircraft accidents have been directly attributable to such gradient interface malfunctions.

This research project has identified *interface* as a key attribute of Artificers to the point where in the next section it is seen as a form of power. Thus the Exemplar Project is a form of 'grand synthesis' where the whole is more than the sum of the parts. Such synthesis is rare to find in Western culture with its specialisations and divisions of labour etc. Examples abound in private and public life of non sequiturs, mismatches, interface failure, lack of socio-technical systems development to meet the demands of technical systems development. Le Grande Synthesis seems indeed an elusive dream.[3]

I think Bucky Fuller would agree that complete symmetry is often not relevant to synergy. Synergy is determined by interface relationship rather than component similarity or direct comparability; as Bucky would say, a wheel in a box does nothing, a wheel under a box (e.g. wheel barrow) does plenty; hence, it is not the components of the system but the relationship among the components that makes for synergy. So, the question is: what relationships among the organizations would make synergy.

Less integration ~ More interface
Today in operational terms interface is more important than ever if only for the simple reality of the sub-contractor, for instance most builders inc. vehicle builders such as Toyota now use a huge even thousands of sub-contractors to supply parts and provide services. No longer the huge conglomerate corporation doing all and making all as GM in the 1960's, rather a de-integrated and highly interfaced network of discrete manufacturers each have to provide what is required when it is required precisely as it is required. Indeed one Australian machine tool manufacturer Global Machinery Company – designs tools in Australia for Australia and has them made in China by totally separate and sub-contracting companies. GMC does not manufacture even a screwdriver!!

Interface a force of nature
Grounded research conducted for this e-book indicates that interface concept is of prime importance to the Artificer/Bush Mechanic concept. Such a concept may be seen as a form of yin technology where as yang technology is more directed at specific items such as a big(ger) rocket or car where the item itself is the focus of the technology whereas interface technologies (see I2 below) are directed at interactions or inter-tidal zones so to speak. In the 'natural' 'world the concept of *dynamic interface* can be seen in interactions between the forces of Nature, for instance this interactive process of 'dynamic interface' generates and shapes, even 'designs' landscapes, drives evolution and so forth.

Interface has some twenty one attributes in some 21 attributes
These twenty one attributes include for example: (I)nterface:

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[3] Although not immediately or even clearly visible integration/yin/soft technologies are emerging as the cutting edge in physical science eg. Neuroscience, military hardware, meat-data manipulation of data sets inc. informatics and web languages, environmental science. As discussed above very little of this knowledge has been applied in the social sphere. One area where interface is vital is in the broking industry e.g. financial, technical, marriage etc. broking.

Such **interface brokers** can: (1) track their area over the long term, (2) are very familiar with the market's prospects and (3) are on top of the technical complexity of the technology, (4) know how to integrate it with other related technologies, (5) and who understand structural requirements (laws, management etc.) while (6) knowing how/who to choose appropriate experts to draw specific intelligence from, and above all (7) who in spite of all this inc. a customer not savvy in all the above, can still get into one shoe of the customer (empathy) and design a brokered package that best suits his or her needs over the next say 5 years. [with excessive red tape (5) *interface* can quickly become *interference* and *broking* become *blocking*].

(I1) within components and

(I2) between components e.g. an interface screen in a car stereo system that by selecting/touching which you want to activate i.e. phone, DVD, audio, navigation these are then selected for you without any switching/plugging etc.,

(I3) between components and the overall design and

(I4) between the overall design and its use;

(I5) between the exemplar and exemplum through techne;

(I6) between the overall design its use and its user;

(I7) between the overall design and its operating environment inc. the;

(I8) operator as well as;

(I9) within the operators skill and agency areas and;

(I10) between the overall design and the meta goals to be interfaced e.g.;

(I11) *fitness in use* in addressing the global problematique through the operation of the exemplar project, as well as

(I12) the lateral interface design dimension missing in bureaucracy, while

(I13) interface with the informal power systems are crucial as are;

(I14) links to learning;

(I15) the interface with the overall design process;

(I16) the interface with happenstance, synchronicity and deeper causations of creativity;

(I17) transit through interface i.e. the context interface, for instance cross fertilisation where one field moves through the interface and fertilises developments in another;

(I18) a content interface where the interface itself becomes for instance the Exemplar Project or a discrete arena of knowledge e.g. Community Economic Development arising from Economics and Social Work disciplines is combined into a discrete discipline in for instance Simon Fraser University;

(I19) failure at interface when disaster, negative symbiosis or negative cumulative knock on effects produce often violent negative results, and finally

(I20) tool interface here the Artificer is involved in the fabrication of the tools he uses to make her exemplar project,

(I21) active citizenship where the artificer's role interfaces with and is an important and respected part of the polis.

[See also Chapt 11 in the section on *The Bushie and interface* these dimensions of interface are explicated further. For additional discussion of attributes I1 to I11 please see section 1.m below on Alexanderian design]

In a broader sense interface between the Artifice Learner and the broader social context of the Exemplar Project is paramount. In this sense the EP as Social Holon concept is retroductive and folds back to include the Artificer as well. This means that there needs to be an efficacious interface between Social System (system), Artificer (agency) and Exemplar Project (process) for positive outcomes from the EP to emerge. In terms of our vernacular we can see interface in the oft heard saying 'join the dots'. [See also the interface section in Chapt.10 Bushie in Context]

BMP 1.c Bushies are their own unique brand of 'not having made it'

Field notes and learning insights fro this research project indicate that the majority of the Artificers involved in this research are single minded, self taught and ferocious in their application to task/exemplar project even a case of following ones dream/idea so to speak and do not fit easily into a 'Team Anything' type approach.

In many regards bushies are reclusive, stubborn, opinionated unique somewhat eccentric however bushies know it is better to ask forgiveness than permission today that few if any are interested in the ideas and that groupthink and peer pressure can dispel and even destroy dreams of, ideas and prototypes for, a better world. They do however to a person, through their actions for instance the exemplar project, put their ingenuity where their mouth or more correctly where their mind is – given they don't generally talk much.

Furthermore because of this isolated nature and workers dress it is often said that they 'never made it' however if one looks into the history of the bushies for instance in this research project one finds that to varying extents all had made it previously for instance as an artist, sometimes to senior executive level, or in academia and than stepped away to undertake their bushies exemplar project.

A substantive critique can be advanced by 'the elders' well ensconced in the status quo that the Artificer through adroit use of various tools, existing ideas, theories and inventions has little new to say. Furthermore the critique goes these are often used as a shelter and protection from the fact that they have very little of substance to say themselves. The works are seen as a patchwork quilt of other people's work and may even been seen as permeated by repressed anger and resentment. Again since they work on their own, don't seek the spotlight and tend towards innovations not inventions it can well be said that 'nothing new has been produced!' Yet it is in the rearrangement of the old from which the new emerges and innovations arise and it depends on ones perspective as to whether they are truly innovations or simply blandishments of the ordinary.

So in summary: to the outside status quo world the Bush Mechanic/Artificer is reality seen as 'not having made it' both in terms of no status, no contribution of substance and no invention and his reaction to this social failure in retreating to his shed may be seen as generating work permeated by anger and resentment. This response is most usually expressed by colleagues in the same field. In Australia a Artificer learns early to take and live with social and professional odium and disparagement. Furthermore bushies can be seen as hectoring, critical, prickly, copy cats, non original, up on their hobby horses and not team players.

And to an extent all these criticisms are right, in that bushie ingenuity and innovations and prototype projects contain common words and nuts and bolts and metal and so forth this the status quo often finds this as 'plagiarism' and 'of little substance' in the nuts and bolts rather than as seeing the prototype as innovative in the 'finished machine/process' and a concretised step of intentionality expressing the human sprit's quest for a better world tomorrow.

BMP 1.d I do (this Exemplar Project) therefore I am

A bushie approach on the other hand, evidenced by many of the Artificers in this study may well be put as something like 'I do this (exemplar project – braiding thinking and doing) therefore I am'. So they work on alone independent, autonomous, and passionate, with their singular application to exemplar task. Work in the Heideggerian sense of revealing potential of deeper meaning for oneself within the Zeitgeist of the time - see Lexicon 'Work' and Heidegger (1977). Basically a bushie is happy in his own company and taking his own counsel. If this were not so Exemplar Projects would not be possible. In this sense and to a point it may be said that from a social construction perspective Artificers tend to follow their own dream/idea so to speak and hence experience some several types of marginalisation; (1) cultural, (2) individual, (3) professional, (4) financial and (5) social (in that regulations, insurance, taxation all prevent effective operation in a bushie realm and so the bushie has to go 'underground' or 'beneath the system's radar'[4].

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[4] This is where a dual currency comes to the fore. The local 'currency' to support ones vocation (under the monetary systems radar) while one's job supports ones work and pays the bills in 'federal' 'money' dollars. Some put this as the Yin |Yang of the financial dimension of local economic systems. The local currency is equalitarian, hourly rates are equalised, currency is created by the partners to an economic exchange when the transaction is to occur, there is no interest rate. The tragedy for this type of currency system in Australia - called LETS (Local Economy Trading System) is that GST is now required in Federal monetary yang dollars with the requisite need for intense GST book keeping as well as having some actual federal dollars as part of the previously 'non-monetised' trading system. This has all but killed off the LETS systems, however a dual

This almost inevitably means separating themselves for instance in their shed, their project, from their peers and to an extent even from their community, in sort becoming their own innovation and enterprise zone. It is the contention of this e-book that social/governancal innovation needs to take account of this sort of diverse ecology of DIY self innovation zones that generate exemplar projects through the operations of DIY'ers such as Artificers.

As an example it has ever been a profound can perplexing view of our society that if you write words that are judged important or sing a song, a technological invention or are adjudged a 'good' employee or employer one gets profound accolades and much status even fortune yet if one makes a social innovation one gets no recognition at all. In this sense they have to become their own brand in a market of one – beyond commercialisation.

Possibly to an extent different cultures don't see the separation as so polarised e.g. the French and the status of bricoleur as tinkerer the Artificer is seen as a much more integral part of culture. Generally speaking however this position is in my view somewhat marginal itself. In short the status quo seems to have little time for the Artificer.

The field research for this e-book indicates that bushies feel keenly the odium and disparagement of others that haven't really 'made it' however they don't seek to, they are not recognised as having any serious social status and yet don't seek it, get little or no support from the mainstream and have to provide it themselves, are often marginal in their operations e.g. breaking some by-laws by grinding/welding/lathing in their sheds which themselves are not 'legal'. Yet all the bushies in the research project and others I have known feel this social ostracism keenly and later in their life begin to see it as almost a pre-requisite for their work.

BMP 1.e The Exemplar Project and Commercialisation

Yet in many ways given our culture all this is necessary in order to produce the exemplar project. Furthermore field research indicated that the prototype is seldom exploited or commercialised by the Artificer – the challenge is met because it is there not because there is money to be made. This is not to say the bushie is a naïve help all and wants nothing for his efforts rather that making money is not a high priority driver. Rather the bushie seeks to help others to develop their own exemplar projects. Commercialisation is for others. And here is the rub as the hand over now occurs from the informal to formal sectors and the formal sector/economy has been thoroughly colonised by corpor'n'ations and

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currency in principle illustrates one way a financial system can support the Artificer/Bush Mechanic. Wildman and Schwencke (2003). See also Appendix B here.

In this light it is noteworthy that **all the Artificers involved in this action research** project have had to find an alternative 'income' and run a de facto dual currency system whether it be by way of charging on a 'mates rates' or semi barter system and running under the systems radar; or being protired or semi or fully retired; or having 'two incomes' one in federal dollars and the other in local dollars so as one can support the vicissitudes of the other. None of the Artificers had major debts/mortgages that require payment in federal dollars, and all but one had developed a substantial alternative federal dollar income through a small business, typically run in conjunction with, or by, their partners. So clearly relationship and family are crucial for the existence of Artificers.

Finally to a small but nevertheless significant extent this dual income model generates a certain proactive and reactive resiliencies in the life and work styles of the Artificers should another 'Great Depression' type crash, or tragically terrorist attack, occur this resiliency may well come to the fore - again. Further one needs to recognise that economy and ecology come from the same Greek root oikos - home - so the monetary system fits into the Greek concept of oikonomia - prudential home-hold economic management cp. Chrematistics - love of money (in Aristotelian terms), which inturn fits into the 'grow-our-own', Gaian 'natural' sustainable economy here together now. Jitendranda and Wildman (2003); Wildman (1993), (1997:Vol2: App 7 pgs 64-74)

globalisation and so the general level of skills and understanding to be host positive for such bushie innovations is sadly lacking, so most projects remain as prototypes.

BMP 1.f Exemplar Project and Artificer 'Power'

One may say that Artificers operate from a basis of artifice(r) power which includes, expertise or artisan power as well as interface power; and then from agenda power; and then relational power with little or no claim to positional, coercive, financial or cultural powers e.g. as a chief executive officer, senior politician or manager may have - primarily the power of one. Gaventa (1980). In a sense one may say given the present cultural position of homogenisation of tastes and dumbing down through regulation Artificers operate a sort of synthesised almost alternative-cultural power. An example of a bushie into overt power would be a rare creature indeed – a statesman.

BMP 1.g Artificers as collaborative individuals and the Exemplar Project as an example of/strange attractor for, such collaboration

Artificers integrate life at the individual perspective usually around a specific task, and then collaborate. Integration is not from the group qua. group perspective rather it is as indicated around the individual as expressed through the group qua. project group perspective seen in the exemplar project. The global problematique and exemplar project principles insist Artificers do link to the big picture which by definition takes what may be called 'collaborative individualism' even 'mutual aid anarchism' rather than group think. A community of Artificers is in many ways the anthesis of the hive or the ant colony, more a collection of equal individuals collaborating to achieve common goals. In ancient Greece 4thCBC this was called isonomy of which a depreciated version became known as democracy.

BMP 1.h The Exemplar Project and the three types of design - from d to IDI to PIDIL *sauvage dessein* design heuristics

'D'esign as an instance of *Sauvage Dessein* in this sense includes Idea | Design | Implementation i.e. Concept/Thinking/Imagining | Scenarios/Blueprints | Strategic Plan/ Enactment/Operations.

Type 1 d design: Generally 'd'esign is just taken to apply to the second stage that is drawing up the blueprint (the **first type of design** the 'd' process).

Type 2 IDI design: Whereas in Quality literature and in this project design is taken to mean 'fitness in use' and therefore design has to include all three attributes of design (**the second type of design**). The I-D-I process. As such 'd'esign applies to thought bubbles, scenarios, blueprints and strategic plans.

Outlining the PIDIL process
Type 3 PIDIL design: The exemplar project moves beyond d to D and ultimately 'D'esign. This involves the artificer and the client/customer in co-designing the project in the 'D' sense and thereby considering the Problematique and its prioritisation, from which the need for a project/process emerges | the Idea of how to response | the design of a response e.g. drawing up a blueprint | Implementation and | finally Learning form this process - **the P-I-D-I-L or 'D'esign process also called Living Design or *Sauvage Dessein*.** The **third type of design**.

Records kept for the Exemplar and other shorter Projects covered date, category of effort, and value, its duration as well as totals and percentages. Results were averaged over four projects, inc. the principal exemplar project of and checked against several others.   indicate that although only being prioritised as low rank, implementation, esp. of any innovation or custom built project takes at least 80-90% of the total time of a project, yet receives only 5-

10% of the consideration in the overall planning and recognition. Furthermore in my role as an academic I would write 100,000 words of text material for students whom I never met (distance education) then they would read it and write back some 5000 words in three assignments over a semester, I would write several hundred works evaluation on their assignments and give them a number grade. If they passed and did this 21 times they got a piece of paper with 31 words on it i.e. a degree. That is thinking remains very much separated from and superior to doing, in our day to day lives and education and academia esp. Social Sciences.

'1-3-100' Design Rule of Thumb

Furthermore these records indicate a P-I-D-I-L 'effort' averaged over the four projects gives an index of 1-3-3-100-3 hours and 1%-3%-3%-90%-3% percent effort distribution. This is referred to as the 1-3-100 Rule of Thumb for I-D-I. As can be see from the above paragraph academia especially in the social sciences is textual and concentrates almost exclusively on the first 'I' i.e. Idea/concept/thinking and practically nothing on the second 'I' i.e. implementation/doing that will ultimately play a profound role in the success or failure of the first 'I'.

The Artificers I have observed for this research project all advocate the third type of design or at least the second plus an engaged form of learning that 'reverse discriminates' in favour of implementation and learning from ones actions.

The Design Module System (DMS)

In the design of the boat I evolved a system of design that I call the Design Module System or DMS. It could also be called:
. Modular design
. Pattern language
. Design balance
[This system was developed initially in the renovations of our home at 38 Royal Street in 2000 where it became obvious that for instance unless one was careful one could spend $58,000 on renovations and still have only one toilet. Clearly there needed to be a balance in fitments and function and overall integration - this was the genesis for my system of design balance explicated below.] The idea is about how one fits and balances components and interfaces in the overall project so one does not end up with two left legs so to speak. Alexander (1977).

My basic currency of the module was a functional design module valued at $15000 in 2004 Australian Dollars. These interfaced in a pattern that produced the final boat. The essential aspect of this was that design had to go inside and outside the boat and even outside the outside of the boat. The DM was designed to keep a certain dynamic balance between the various components of the boat (as can be seen below), inc. storage and use, within the overall parameter of the integration of form and function. This is illustrated in the following table.

Design in this sense draws more from what maybe called 'craft design' which uses 'quaternary patterns' or even organic archetypes rather than abstract ratiocinated maps and plans. Turner (1996:152). Idea in this sense of I-D-I or Idea - Design - Implementation - is more related to this underlying organic bottom up post/constructivist (post-post modern) pattern rather than heavenly Platonic ideals of perfection where art imitates nature - rather the organic the overall is built on accretions of smaller constructions and so-called 'imperfections' or should we say 'differently abled' are seen as part of the overall pattern two need to blend even as a mobius strip or infinity symbol.

Design also needs a project time/life line, anticipated cost increases for instance and is primarily about releasing the potential for such blending whereby form (means) does not overpower function (ends) or vice versa. NB: constructivist in the sense the project, with its form and function, is of the industrial age and post constructivist in that Design uses the organic bottom up meta-pattern approach and that this allows the Artifice to develop a unique path through the design process to manifest the potential of the intent/project in a unique form - with superb fitness for function.

There is no one right way of designing - certainly place must be consulted, though not necessarily allowed to dictate form. Conventional method of survey analyse design (the SAD method) or the craft method indicated above or the Platonic method searching for perfection or the post modern method which abolishes designers and to an extent design altogether each have their place. Turner (1996:153). Design in the sense of this e-book becomes interactive patterns of ideas including constraints, requirements and above all the Genius of the Place/Space.

In the table below we see the difference between integrated design and design modules. Design integration for the eventual building of the boat commenced several years before the actual building of the boat. In the first instance in 2000 I had no idea I would eventually build a boat and so in this process I first established the idea of balanced design in the second I had a vague idea that eventually I would like to use the area on the down side of the house so I early 2003, I had the waste soil deposited there and levelled rather than dumped (which also would have been expensive). These first two points are part of integrated design separate yet foundational to the eventual building of the boat (commencing in late 2003 (design)/early 2004 (construction)).

From PIDIL to the Consumer society
In the above process it is PIDIL wherein Learning comes from Consumption or Use of the Exemplar. Conventionally, however in consumer society it is simply C with PIDI being done by corporations or elite bureaucrats a sort of attenuated (PIDI)~C system. Our role is simply to obey and consume. As citizens we don't have a say in whether we as a nation go to war/how school curriculum priorities are set etc. etc. But we are expected to play our bit and consume and obey the rules not questioning not expressing our agency not designing our own solutions etc. This has led to a severely dumbed down 'C' obsessed citizenry where the cathedrals of today are moving from shopping centres to casinos. Ever more removed from the bushy. Ever more removed from a citizens role in PIDIL!

Table 9: Design Modules in the Exemplar Project

No.	DM	Timeline	Comment	DM (inc. labour) Scale
1.	Renovations at 38 upstairs	2000	Gave me the idea for design balance	NA
2.	Renovations at 38 Down stairs	2003	Allowed me to include a small shed and prepare a flat area at the side of the house for boat building	NA
3.	Tow vehicle and wiring for break away breaks	2003	Specifically wired for the specific type of break away breaks on this specific trailer	1
4.	Trailer	2004		1
5.	Gate, Shade sails and installation	2004	Needed for egress and shade on building site and ultimately protection of the finished boat	0.5
6.	Hull	2004	NB: This is not a 'facadeism' i.e. where the façade or appearances or are considered more important than function or inner meaning	1
7.	Interior (carpet, fitments, cabin, water)	2004		1
8.	Motors	2004		1
9.	Instruments	2005		0.5
10	S'steel and bimini (cover) and campers	2005		1
			∑	7

Source: P Wildman 07-2007

BMP 1.ia Exemplar Project ~ Exemplar Service - sympatico and empathico

Deep service that includes the whole piece/project, inc. interfaces, clean up, fitness for ultimate (not only component) use, and does not 'rub the customer out' yet involves her in the 'D'esign process. This type of service draws much from approaches such as *lean thinking* and introduces the concept of the value chain levelled back from the customer. Womack (1996). In this sense the customer can see the end from the beginning not just a heap of paperwork or delivery/service problems. This visibility is crucial for exemplar service and needs to be built in from scratch.

BMP1.ib Exemplar Project ~ Exemplar Production and Post-Internalisation concretised in Lean Production

Turner (1996) sees a strong link between what he sees as 'rough hand' manufacturing say in medieval times with the case of the master craftsman/artificer of Cathedrals and Womank's post-industrial Lean Production system. This lean production system has been embraced strongly by Toyota and is one key reason for its supremacy over Ford which has stayed with the industrial model of mass production.

Indeed many firms in today's de-integrated (subcontracting and intermediary organisations viz. Toyota and the Japanese trading companies cp. one monolithic 1960's corporation) yet highly interfaced world that is manufacturing and service delivery today, either reach their end customer through other firms or obtain the items they need to solve their customers' problems from many suppliers. The end customers -- that's you and me in our role as consumers -- are only interested in the value delivered at the very end of the value stream (sympathico service – dancing together – a pas de deux nonetheless). And we certainly don't want to hear about the difficulties that retailers, distributors, manufacturers, and supplier are having cooperating with each other to solve our problems.

So the challenge now for all of us -- no matter which customers we serve -- is to begin conversations across firms about optimizing total value streams. The best approach is to take a walk together (empathico service – walking in one of the customers shoes so to speak – still closer identification with the needs of the customer than sympatico), backwards from the end customer (or, even better, *with* the end customer), in order to draw an accurate map of the total value stream with all its shortcomings. Then it's time to talk seriously about how to create a smoother-flowing, higher-quality, lower-cost, less waiting, better service value stream with commitment to rapid response to customers queries, filling of *customers* orders, that can be a win-win-win for producers, providers, their suppliers, and consumers, as everyone learns to think end to end.

In short Artificers are committed to a sympatico and empathico form of service – indeed rare today.

BMP 1.j Perspectival approach to the Exemplar Project

Many Artificers seek, yet aren't always able to, to view the exemplar project from various perspectives inc. hers, the customers, her critiques, various competitive positions as well as historical and often with a dash of the futurorical. In this sense a Artificer recognises the importance of being able to 'situate' their particular perspective on being via. their exemplar project.

BMP 1.k Aesthetics, Utility and the Exemplar Project

The EP requires a robust even substantially different sense of aesthetics than the norm. Normally one buys a product e.g. TV, car, house and so forth it is ready made or at least the degrees of freedom are severely attenuated e.g. size plugs, bedrooms etc. Here you have chosen a 'beautiful' design off the shelf. That is one spends the money and that day drives home a brand new complete BMW (for instance).   And the car already has aesthetics built in as well as the new owner gaining immediate gratification/satisfaction i.e. utility from the purchase.

In an EP however one spends the $0.1m then has, for instance, to locate a trades person to build the product with your help and then robustly contend even fight for the design one has chosen all the while being alert to required design changes and potential improvements as interface with other aspects of the project become explicit and tangible. So the money is spent over a period of months even years not days or weeks. Clearly utility is deferred a sort of 'deferred utility consumption', and in economics saving is defined as 'deferred consumption' – so in a sense an EP is a form of saving in relation to the extended delay in gaining utility from eventual consumption that is.

So in an EP one not only has to design and build the BMW one has sometimes to design the shelf it comes from. Such custom building is challenging to the owner, designer and builder as since much is a one off economies of scale are none existent and improvisation de regur as well as changes during construction necessary. Clearly the buyer is now intimately involved in the trinity of: (1) interface issues, (2) design compromise and (3) budget constraints. These constraints are inherent in anything including the BMW bought off the shelf it's just that the buyer is shielded from these realities by advertising and ego glitz.

Aesthetics in this sense are built not bought, and gratification, via. utility, is deferred not immediate. They are gritty bumpy time consuming frustrating tradeoffs. And to enjoy the final product one needs a different sort of utility and approach to aesthetics.

Few others have a simpatico value system and consequently flare ups often occur at the action interface.

BMP 1.I The Exemplar Project, Artificers and Ethics - moving from 'do' to 'is' to 'ought'

BMP 1.I.1 Exploring the Normative Dimension of the Artificer:

'Do' does not equal 'Is' which does not equal 'Ought' - A person can be a Artificer in what they 'do' but this does not mean that they are a Artificer in what they 'is' - so to speak. That is they can have techne in a technical sense but not in an ethical sense. For instance a Artificer may be able to work on an outboard motor with techne yet not walk his talk more broadly let along use his techne towards a better world and so does not exercise this techne in an ethical manner let alone use this techne in order to assist Gaia - in terms of the globally prioritised exemplar project.

Do, Is and Ought are very separate issues. In Artificer terms this translates to 'do' as per skills, 'is' as per individual as an ethical entity and 'be' as in global citizen.

Further in moral philosophy terms the extension of 'What they Do' to 'What they Is' is a progression towards answering 'What they Ought to Do'. Is does not equal ought. Just because this 'is' the way it is done or society is organised does not equal this ought to be the way society is or is organised. *Ethics make 'a' and indeed 'the' difference.*

A brief explication of respective stages of 'ought' viz. Exemplar Projects integrated with Kohlberg's Stages (KS) of Moral Development
Kohlberg identifies six such stages of 'ought' so to speak. Each stage is seen by Kohlberg (1976) as a nested holon, these stages are structures or lenses for moral reasoning about a particular normative matter. Ethics determine the difference between 'doing' what a Artificer does and 'being' a Artificer. Exemplar Projects can exist at any level however as developed in this work the Exemplar Project viz. Artificer, has a clear anticipation vector towards an *efficacious-fitness-in-use-to-demonstrate-a-better-world-today-towards-a better-world-tomorrow-for-our-grand-children* i.e. Level 3 Stage 5 & 6.

Several social philosophers have identified broadly similar categories of moral development as Kohlberg (1976), Dewey (1897) and Piaget (1955), (1967), (1983) are but three. Dewey the educator and Piaget the psychologist saw them also as developmental viz. 0-4yrs, 4-8yrs, 8-12yrs w.r.t. (with respect to) Piaget for instance. Kohlberg likewise maintains that moral reasoning is based on logical reasoning which itself has three principal categories which incidentally correlate with Kohlberg's stages – following - viz. concrete operational (Level 1), formal operational (Level 2), post formal operational (Level 3), effectively splitting each Level into two stages..

Further Kohlberg's (1976) approach to ethics is deontological – in that duties and rights and imperatives are more important considerations than a consequentalist approach to actions i.e. the end does not justify the means. In this perspective right action is about rightness rather than results or consequences. Rightness is towards justice which, includes: empathy, universality, equality, fairness. Kohlberg (1976:675). Kohlberg also sees the stages as cognitive and developmental however he sees them more as holons somewhat independent of age and intelligence Kohlberg (1976:671) within which people and groups of people can locate and change between over time.

This approach of applying Kohlberg's stages is presented here, in somewhat abbreviated form, not because I consider it is 'T'he correct approach rather more because it is 'a' view that demonstrates how the Exemplar Project is strongly linked to normative considerations and furthermore it is a well regarded and defensible philosophical position. Not every great project can become an exemplar project in the sense the term is used in this e-book i.e. an expression of Level 3 normative considerations.

Level 1- Pre-conventional Level (PreCL) – Theme ~ Power Over with reification through focus on the individual/locus of moral authenticity – this is the nature of Nature -

KS1-PreCL1: **Punishment -** Smack/prison/shoot etc. Society would be seen as a giant machine where punitive punishment for disobedience for obedience would be seen as an KS1 Exemplar Project (EP) here would be a typical authoritarian regime, for example a beneficent one such as Singapore or Nazi Germany as a (negative) EP, people to be treated as objects/pawns/cogs. *Here power is the power of coercion.*

KS2-PreCL2**: Palace Politics -** Power Politics/voting blocks - What's in it for me (you scratch my back and I'll scratch yours). Here society is about 'who is sleeping with who' or 'who is in whose pockets' so to speak so 'it's not what you know but who you know'. A KS2 Exemplar Project would be a typical smoothly operating politico-market system or the battle field 'it was every man for himself' – the US as an EP., people to be treated as segments. *Here Power is the power of vested interests and their expression for instance through preference manipulation, compliance control and money.*

Level 2 - Conventional Level (ConL) – Theme ~ Conformity to with reification through focus on family/group/nation//locus of moral authenticity – this is the way it is -

KS3-CVL1: **Expectations -** Western - 'care and concern' 'do the right thing', Asian - 'Face' - Here society is seen as manifesting respect for the ancestors/tradition and is about fitting in with social mores etc., be nice – the Status Quo and its associated systems e.g. not 'loosing face' as in an Asian social system or a modern prison as a KS3 Exemplar Project, people to be treated as part of tradition. *Here Power is that of social mores i.e. tradition.*

KS4-CVL2**: Law and Order -** Law and order - 'duty of care' – civil liberties seen as right to lawful process and right to hold property that is not appropriatable by the State. Here society is seen as hierarchical bureaucratic machine with levers for adjusting various settings established through rules and regulations, punitively enforced. For instance Property Rights and the rules by which existing status quo continues are the sorts of KS4 Exemplar Project's where people to be treated by rules. *Here Power is through the rule of law.*

Level 3 – Post-conventional [autonomous, principled] level (PostCL) – Theme ~ Mutual Agreement With and reification through focus on transcendent universal category e.g. of human rights and responsibilities/ locus of moral authenticity – this is the way it 'ought' to be

KS5-PostC1: **Distributive Justice -** Welfare State - Social contract explicit generally with utilitarian outcomes. Here society is the democracy through the social compact or contract made to each member. The wage accord with Unions in Australia from the 1980's, UN Charters of Human Rights with Human Responsibilities as a KS5 Exemplar Project's, people as each person entitled to protections and responsibilities. *Here Power is what's 'fairs fair'.*

KS6-PostC2: **Golden Rule -** Do unto others as you would have them do unto you, the Golden rule of mutual aid or minimised mutual harm. Commonly stated as 'do unto others as you would have them do unto you' or in my terms 'How then should we live together today for a better world tomorrow for all our children's children?' Here society is the republic of the citizen, and it is the citizen who in deliberation with others collectively prioritises the problematique. The Artificers exemplar project, say of global governance or the Exemplar Project of sociocracy, or the 15 global challenges of the Millennium Project [

www.stateofthefuture.org] as a KS6 Exemplar Project's, people here to help others as they wish to be helped by them. *Here Power is expressed in mutual aid and deliberative action.*

KS7-PostC3: **Ultimate Compassion** - Christos Principle - Universal care/love orientation - beyond justice - Mother Theresa. [No. 7 added by Richard Mochelle 2002 - Kohlberg was going in this direction however this has not been externalised by him], for instance one of Mother Theresa's hospices in India as a KS7 Exemplar Project. Here Mother Theresa sees the background reification rationale for the hospice as caring for *Christ in one of his many disturbing visages*, no matter what age, caste, class, wealth, religion. Here society is that of the compassionate citizen and where the EP call is from beyond the merely human, people as a person to help all others irrespective of personal consequences. *Here Power is expressed in unconditional love.*

NB: It is possible for instance to have an Exemplar Project operate at different levels e.g. a police states (stage 1 & 2) can be beneficent and have rules to establish a social contract to ensure that all people are treated fairly (stages 4 & 5).

BMP 1.I.2 Tools maketh and breaketh the culture

Archaeologists and anthropologists have long recognised a link between sophistication in tools and culture. In this sense they use tool complexity as key indicator of cultural complexity. So that it may be said that artificers and artisans maketh the culture, in that hand knowledge translated into tools, structures and buildings are taken as one indicator of the sophistication of the host culture. A little like the saying 'clothes maketh the man' then 'who maketh the clothes maketh the men' which in part maketh the culture.

BMP 1.I.3 Tools are like weapons ~ they wound sometimes: the ethics of tools

Clearly this e-book argues that there needs to be an ethical context which includes tools. Tools can be the precursor to weapons. An extension of a famous Cher song comes to mind 'Words (tools) are like weapons they wound sometimes'. So tools and their application in terms of meta projects such as the exemplar project in Artificer Learning need to be proscribed ethically in the light of these meta considerations. Some commentators argue the species homo would have survived longer if we had not developed tools and had stayed in the trees i.e. been more like bonobos rather than chimpanzees - this is on the basis that the species is arguably somewhat toxic to itself and Gaia. Well we recall the apocalyptic scene in 2001 A Space Odyssey - where the philosophers stone of wisdom is conjointly placed with a scene the apes discovery of a weapon tool the leg bone of a dead predecessor!!

Tools such as the atomic bomb and chemical, biological warfare as well as smart weapons reduce my/our humanity as they allow the many to be punished for the 'mistakes' of the few and they treat technology as merely instrumental without an inherent 'search for truth' as with the ancient Greek concept of 'techne'. It may well be argued that post the advent of agriculture with fixed abodes and more 'stuff' to pillage the use of the tool-weapon has become tragically much more widespread and is seen as sexy and gets the TV coverage whereas small, nurturing organic peace moves don't.

Another important consideration, and one not to be sidestepped, may be derived from the perspicuous saying 'when the only tool you have is a hammer every problem looks like a nail'. Here we see how our 'dependency' on tools can shape our perception and analysis of social problems - for instance. It may well be that when a country only has tool-weapons at its disposal intellectually and literally then every external problem looks like one capable of solution by the application of that weapon as tool. Thus, some would argue, we have Iraq, 2003-2007, where the greatest military power in the world has, in a period longer than its

engagement in the Second World War when it alone stopped the Japanese onslaught, been unable to secure a 20km road between the air port and the capital in a country of 22 million people - the size of Australia.

This e-book argues that ethical considerations need to be 'built in' to tool development and use. In the case of Artificer Learning and in line with Kohlberg's conventional level ethics, these include: (1) commitment to bettering the social situation of those affected (social holon criteria); (2) awareness of the global problematique and its distillation into the exemplar project (global problematique), (3) deliberative prioritisation of this problematique and (4) the socially just application of the tools to while (5) respecting the human rights of all concerned and (6) being accountable to the citizenry for their application. This was the old aim of the Workers Education Associations and Schools of Art - now long replaced by Tayloristic forms of Vocational Education aimed at credentialing compartmentalised job skills.

An interesting aside in this regard are the Bonobos and Chimpanzees both are apes of about the same size - the former is nurturing, largely vegetarian has little or no violence in, or between, its tribes and no tools whereas the latter is agentic, eats red meat sometimes of its own kind, is aggressive and has developed and uses tools.

BMP 1.I.4 Artifice energy - from Artificer to Terrorist and back - respecting the Urge to Artifice as a human need nay right

Tragically in many ways we can see the Artificer spirit all too alive in the tools of the terrorists for instance the home bomb makers and those working towards a dirty bomb to be used in western suburban areas. Here we have to be clear and sharp we need to apply the 'golden rule' as discussed in Stage 6 Kohlberg above. Commonly stated as 'do unto others as you would have them do unto you' or in my terms 'How then should we live together today for a better world tomorrow for all our children's children? This level of inslusivity and participation and openness is absolutely vital for our positive futures.

Tragically and understandably, in terms of Artificer analysis, the vast majority of these folks are young males. Our system simply does not provide many positive public opportunities for young males to express their artificer agency for instance unlike females who still have the private sphere.

Further increasingly on the so called 'pro eco' or green side of the terrorism spectrum that is anti ecocide so to speak such as the Earth Liberation Front (ELF) be speaks a broad spectrum, a sort of 'will to artifice' so to speak as a deep human energy or urge. Ranging from the ELF on once side of the spectrum through the art·ificer as explicated in this eBook to the suicide artificer in Iraq on the other. In all regards the artificer represents a challenge to consumerist society where we replace and recycle not repair anything and where we as individuals no longer gather and make our own food, water, power, clothes and housing. Here even the mainstream Artificer is an anti hyper-consumption terrorist or at least certainly a comfort pirate. In this sense the Right to Artifice can be seen as a vital human energy even underlying psychological urge and ultimately potentially even as a human right. What is needed are ways of channelising this urge to artifice so to speak into positive self help/mutual aid hetrotechnic co-operation type initiatives rather than stripping the cognitive of the affective and motor and vice versa.

One such way discussed later in this ebook (Appendix F) is the linking of the Artificer with eNuffer (enough is enough - self limiting of consumption) with Elder, yet another way is the Masonic path of initiation yet other less esoteric ways include revaluing hobbies, exemplar project build offs such as the solar decathlon http://www.solardecathlon.org/ and TV series such as Junkyard Wars, Escape from Experiment Island and so forth. Even the

introduction for instance of an Exemplar Project class of awards in the Order of Australia and also Duke of Edinburgh awards would assist. Clearly re-jigging the education system to re-align thinking and doing are also critical aspects of this recovery and respect for this underlying human energy. All of these have been discussed in this eBook collectively however they represent a separate initiative and as such are beyond the scope of this eBook.

BMP 1.m Mutual Morphing: Pattern Language as interface between micro- and, macro-scopic design elements in the Exemplar Project

An emergent approach to architecture links designing and construction in what Christopher Alexander (2005) calls *making*, as opposed to separating the two in what is the conventionally dominant mimetic norm called *building*. Here interface is the pattern language established between the object being made and its context i.e. its use and environment, by constant adjustment and feedback and feedforward leading to small adjustments in design on the spot resulting in action based learning. For too long according to Alexander thinking and doing have been separated with the former elevated to academic institutions. Here we have *Artificer as Architect as Maker* and vice versa, *Architect as Artificer as Maker*.

My argument is that building a house can be replaced by for instance making a house/boat/farm/exemplar project.

Here the artificer or constructor has a degree of agency across several fields/skill arenas to influence the specific efficacious fit of the part and its construction to the overall project. This may be compared to the conventional Tayloristic division of labour between for instance plumber, electrician, carpenter etc. It is through this process that the macro-scale affects the micro and critically the reverse i.e. evens something as simple as the correct side of a washer to the outside can affect the aesthetics crucially in the overall project. Alexander (2005:496) calls this the 'minute subtleties of dimension shape and colour' have a profound effect on the 'locus of aesthetic focus' in the project. Centres in this design sense are foci where ones eyes are drawn to rather than for instance the centre of a circle or a room per se, though the two are related.

Design wise then we have achieved our goal when we have a harmonious interface of pattern language between these centres – not their microscopic components however without the microscopic components where would be no interface of centres, and ultimately the pattern language is to allow the details to 'come to life' pg499. This intensifies and indeed enviviates i.e. enlivens the larger centres – a true two way positive sum game aesthetic payoff. This for Alexander is 'living structure', indeed Alexander sees the key as authentic aesthetic consonance or feeling or Eros or syncretism from the centres that are made Alexander (2005:516) – structure as morphing holon where the semi autonomous parts affect the semi autonomous whole and vice versa. So perfection is sought, rather than in the repetitive technical perfection of the production line, in the authenticity of consonance of the design centres that are made.

For this approach to design to move ahead a new sort of relationship between builder | 'buildee' or maker | 'makee' codified in a new form of non-adversarial contract is required cp. to the existing system of specifying everything in minute detail before construction begins. A contract system that explicitly allows for (a) a fixed percentage return to the builder and (b) the agency of the 'maker' in that agency is today in conventional systems subsumed within the structure of the blueprint and the resultant bid and contract, are eminently possible. [see www.natureoforder.com and in particular www.patternlanguage.com]

BMP 1.o: Bricolage

During the research project I noted that all the Artificers, in shaping their Exemplar Project, had to quite profound extents 'mixed and matched' (m&m) the resource needs of their exemplar project with available resources – reusing here, recycling there, bartering somewhere else, fabricating where necessary, borrowing if needed and so forth. For me all this was never to produce a dodgy project but illustrated the meaning of the Artificer – applied ingenuity – active practical wisdom. Although initially made as side note in my field journal the 'm&m' process took on substantially more importance as I read more deeply about 'man the tool maker and user' also being 'man the bricoleur' – the m&m'er so to speak.

Bricolage is defined by Ingold (1993b:340) in his paper 'Tools Techniques and Technology', as the process whereby old pieces of equipment form the basis for the construction of new pieces of equipment, thus fulfilling quite different functions in successive operations of the kind that Levi-Strauss (1966) classically called bricolage.

[NB: Bricolage is also addressed in Artificer Generative Principle 3 in Chapter 9]

BMP 1.p: Mimesis

Imitation is not copying, and it is not blindly following instruction. Nor is mimesis is not rote chaining of sub routines.

Imitation or mimesis is imitating with understanding from the perspective of the 'imitatee'. Further mimesis is only undertaken by hominids not by monkeys and only to a very limited extent by the primates in particular the great apes. So **monkey see monkey do is a rurban myth** (rural-urban myth) – even **ape see ape do as in aping** is highly unlikely and extremely limited. Visalberghi (1993:144) and apes do not copy as in mimic they can follow as individuals in a rough sense yet not mimic.

As I undertook the design and construction of my Exemplar Project and worked for 21/2 years with one of the Artificers in this study it became clear to me the truth and importance of this component. Although being somewhat practical and having a plumber father who involved me in helping him on weekends (and was a hemiplegic) at the inception of the project, for const and learning reasons, I planned to 'help' I had not realised how important the mimetic component would be. I got to call it piggybacking. Using this I learnt to work stainless steel, identify and use marine wiring, pour through catalogues for the 'right' or at least 'adjustable' item, face apparently unsolvable problems and not give up till a solution was in hand and then doggedly applying it in several (sometimes up to three) prototypes and so forth. And I did this through choosing an excellent boat 'techne'cian' and applying mimesis.

[Mimesis is addressed more fully in Chapter 9 in the section on Defining and Applying Mimesis]

BPM 1.q: Dexterity – Manual and Mental

Hands are levers of influence on the world that make intelligence worth having' Pinker (1997:11).
He continues – **Precision hands and precision intelligence coevolved in the human lineage, and the fossil record shows that hands led the way** [Quoted in Wilson (1998:326)]

Also consider please: Gregory of Nyssa, a church father, died in 396AD, maintained that **'if the body had no hands, how then would the articulate voice be formed in it?** Hewes (1993:22)

Dexterity comes hand in glove with attention to detail – that old clerical adage – and as any apprentice knows at first it is hard to manage and handle tools. Here we can see the linking, even braiding, of manual and mental dexterities. Indeed tradesmen have a saying for a colleague who has made the move to management 'oh I see he is not on the tools any more'.

In this project particularly in the implementation phase a layered form of dexterity was needed whereby one specific dexterity requires a more basic one to be present to be able to manifest. For instance take welding – and there was a lot of it on this project weeks in fact - pre-requisites like: measurement, attention to detail, forward planing to have the right tools at the right time, then correctly holding the part to be welded as well as having the following layers in place – the correct welder with the correct welding rod and equipment in the correct weather conditions for welding and post-requisites such as well as clean up 'pickle' paste and brush to apply it, all took time, indeed hundreds of hours, and included many mistakes and at the end of the day I believe taught me dexterity and patience – though I still have a lot to learn about both.

[NB: Dexterity is addressed more fully in Bush Mechanic Formative Principle 1& 5 in Chapter 9]

BMP 1.r: The Exemplum

Here the general principles behind the idea, design and implementation of the exemplar become the focus of reflection and engagement. In this manner the bigger picture behind the exemplar project are surfaced and the link with the universe can become understood and articulated. The exemplar project equals in effect the exemplum plus techne (general principles + skills of the artificer).

Again when undertaking the construction of my exemplar project we would spent hours dialoguing and sometimes arguing about identifying background hydrodynamic principles and calculations, generating and discussing options, pouring over catalogues, '3D'ing' how the next stage would link to the previous one and the over all concept, reflecting on how the overall project would function in various operating environments e.g. weather conditions. All these were in effect considering the exemplum behind the exemplar.

[NB: The exemplum and its relationship to the exemplar through the application of techne is explored more fully in Chapter 8]

BMP 1.s: Techne

A key aspect of this work has been its focus on techne as distinct from technology with techne being an attribute of what may philosophically described as active practical knowledge based on experience and reflections on the exemplum as well as dedication and application to task including study and commitment to continuous improvement.

Techne for the Stoics can only produce what they call an acceptable act or *kathekon*. To become a fully virtuous act, an act that is part of human flourishing, part of eudemonia, or *katorthoma*, the act must be done 'as' the wise person would do it – with her heuristics, insights, skills and compassions etc. – all appro pos to virtue, to do unto others …….. General content rules or even specific instructions cannot therefore produce a correct result as these outline what a person ought to do but not 'how' they should do it in the sense of *where they are coming from* when they do it. In this ultimate sense ones lived life becomes an exemplum.

So techne as discussed in this e-book is a derivative of katorthoma rather than as an aggregation of individual behaviourally determined competencies.

I found this the most challenging aspect of the overall project. It was my experience in this project that as they say about philosophy and car or boat mechanicing – it's not just about your ability to think philosophically or have a bunch of tools its about what you can do with these thoughts and tools that matters. And as they say in the game 'its easier said than done' - now there is a wise and absolutely correct adage if ever I heard one. Skill takes practice and practice takes what I call (pr)actice i.e. actually doing the task and this takes the ability to undertake '3D' simulations in ones mind and then put all this together mimetically. If there was a particularly difficult task to be undertaking the next day I would as best I could run a simulation through my mind at night several times and see if there were weak points in the schedule and then I could rehearse my component of the overall task.
[NB: Techne is explored more fully in Chapter 9]

BMP 1.t: Techneology Transfer (TT) and the six crucial aspects thereof

A crucial issue in the process of constructing an Exemplar Project is TT, techne in the sense that it includes more than technological skill. Techne includes the integration of the human and the tool as well as 'walking ones talk' that is personal ethics as well as in the Artificer sense understanding and enacting the ethical progression from 'do' to 'is' to 'be' a Artificer. A particular challenge for any would be bushy is when working with a bushy on an Exemplar Project over a period of years is to come out of the process learning something not just being a spectator or a so called 'gofer' that is with TT, in the sense of (1) familiarity with work tools and (2) in close work skills associated with these tools then as (2) broader picture decision heuristics in the use of which tools and system diagnostics to determine what issue needs to be addressed and then (4) experience in the EP's operations and potential all within the context of an ethical praxis (5) i.e. walk ones talk as a global citizen i.e. techne in its broadest sense, and finally (6) involvement in the overall 'D'esign process e.g. design module system developed for the design of the exemplar project boat undertaken by the author over a 4 year period late 2003- mid 2007.

BMP 2: Social Holon Principle

The exemplar project is an example of a social holon. Social and normative sustainability relates to this principle.

BMP 2.a Exemplar Project as task as a social holon

The exemplar project although it may manifest as a technological or organisational holon is actually seen by the BM as a social holon – homo mutualis – Arendt (1958). The BM practices holonomic or neg-entropic learning and enacts the integrative tendency of Koestler's (1978) social holon (SOHO – Self Organising Holon) meaning the bushie can speak in detail with all walks of life from workers to owners to designers etc. Furthermore a bushie has a holonomic grasp of the big picture while understanding its components in detail the obverse of a' jack of all trades and master of none' really a 'knack for all trades (in the holon) and master of 'done'' and their interface. (see Holon below) All this has been built up over a praxis period of a decade.

As indicated above the Artificer is a Renaissance person and sees the exemplar project at essence not uniquely materialistic i.e. a technological endeavour but rather as ideational i.e. a socially, ethically and morally necessary social innovation. Artificers integrate life at the individual perspective then collaborate, integration is not from the group perspective rather it is as indicated around the individual as expressed through the exemplar project.

BMP 2.b Moral Imperative

The key question behind the social holon is the desire to outwork an answer to the question 'how then should we live together?' This can be extended to *'how then should we live together today for a better world tomorrow for our global children?'* and can be seen as a counter-meme to the dominant meme: *How much then can we consume individually, conspicuously and hedonistically today for our maximum personal social status tomorrow?* This brings in the issues of integrity and ethics i.e. walk ones talk and walk our talk i.e., internal and external representations of the moral imperative. This simple question can be dissected for instance 'we' can be taken to mean sentient life which in turn is made up of organic and inorganic matter. Further concern for our children brings in futures generation considerations, while 'how' brings in the idea of citizen participation in establishing the issues/ethics we should act on/protect so we may live together which in turn derive from the global problematique and so forth.

In many regards, given the situation in the world today, the normative dimension of the social holon within which an Exemplar Project locates is the challenge of humanity. It is my firmly held believe that without solving this issue or even starting to address it we fail Gaia; we fail our children's tomorrow.

BMP 2.c Holonic approach to task

Where the sub-systems parts are 'holonic' viz. semi-autonomous systems themselves, simultaneously whole and part with the part semi autonomous and nested hierarchically in the host system.   Attributes of such an approach are listed below [all page references are to Arthur Koestler's work – below] a holon is:

a. Simultaneously whole and part - whole in itself and part of a nested system eg. structure inc. agency; interface inc. node; collective inc. individual; body inc. skeleton
b. Self organising pg. 293
c. Strategic in that it uses fixed rules yet flexible strategies i.e. integrative algorithm's generating heuristic's for innovative, integrative, novel and creative thrival outcomes pg. 293

      d. Open nested system SOHO Self Organising Open nested Hierarchical Order (not Stimulus - Response) pg. 289

      e. Janus face - laterally autonomous yet simultaneously takes 'appropriate' orders from above and issues orders below pg. 311

      f. Creative and integrative neg-entropic pg. 301

      g. About thrival not just survival

      h. An indicator of Homo Mutualis not Homo Automaton pg. 301

Source: Koestler, A. (1978). *Janus - a summing up*. New York: Vintage. 300pgs.

BMP 2.d Social holon and Collective Governance

Collective governance is a crucial part of the social holon that supports the exemplar project. This however, does not necessarily fit all that well with the individual Artificer although it does with such collective efforts.

The individual Artificer does not have as her first remit achieving 'governance among strangers' if anything he is a somewhat lonely individual working at often frenetic speed on apparently insuperable technical challenges. My response is that that this critique is valid however often great changes are brought about by individuals outside even the status quo at the margin not at the centre working often for little reward and at great cost to themselves and families at a particular challenge. This need is recognised in Entrepreneurial Theory. And furthermore governance plays a key role in collective artificer application such as corporations and NGO's which can well benefit from taking an Artificing approach to their mission.

Nevertheless the Artificer keenly recognises the importance of good governance and advocates in this regard as she sees her ability to express her artifing abilities as a freedom to be assured by good governance. And that this will benefit the broader public.

BMP 2.e Social Holon, Holonic Thinking & Social Innovation

Essentially the social holon principle indicates that the exemplar project is also one of social innovation – see BMP1(h) and Wildman (2002b). In this sense the Social Holon is both status quo and innovatory always it is evolutionary such that a social innovation process and steady as she goes or status quo process are both inherent parts of a Social Holon. With Social Innovation say through an Exemplar Project then we can see that not only does differentiation of the many parts therein produce a new 'manyness' whereas the new integration or interface synergy produces a new 'oneness' that is the boat. It is this interface between differentiation and integration forms new holons which are simultaneously micro and macro.

Taking a further step in Chapter 11.10.I-22 in this eBook we see interface as epistemology - Interface thinking linking the individual and structure. Here I suggest the link between Holonic Thinking, Systems Thinking and Interface Thinking while explicating that it is 'T'hinking that is implied viz. thinking AND doing not just 't'hinking.

BMP 2.f Social Holon = Participatory Consciousness by relinking: (1) Humanity & Nature; (2) Subject & Object; (3) Spectator & Actor; (4) Thinking & Doing

Holonic Thinking then requires a recommitment to a participatory universe where humanity is not 'separated out' as spectator actor observing nature so to speak. What is required is coherent inspiration, overcoming the mechanical scientific barriers founded through the splitting of the subject from the object of natural perception. Subjective and Objective need to be relinked.

Authors such as Berman (1990), Berry (1988), Diamond (2003) and it is hoped this eBook all in quite different ways call for this 'remergence' in a 'post subject | object dichotomy' type context not one where objectivity per se is decried. Rather that one interpretation of the scientific subject | object dichotomy links to another somewhat conventional interpretation of the Old Testament scriptural injunction for *man to subdue and have domination over nature*. This non participatory and non stewardship type interpretation effectively separates (1) man from nature that is separating (2) thinking from doing and thus (3) subject from object i.e. nature becomes an 'object' and ultimately in today's parlance a 'product', which places humanity as (4) spectators of, not actors with, nature. So humanity in this extension of the Scientific Method becomes subject or spectator and nature becomes the object or actor - on a separated 'objectified state and stage'. Here we have the basis for much of our present approach to 'reality' that is power over Nature rather than power with nature.

[**Readers Note:** See also the Great Transitions section in Ch 11 for further dichotomies]

BMP 3: Collective Responsibility Principle – the Artificer as Global Citizen responding to the Global Problematique

The Artificer or Artificer sees her self as a Proto-Global citizen responding locally, concretely, participatively, anticipatively, and proactively with the above two attributes to global futures via. the global problematique by blending internal integrity and external ethics; meta-constitution eg. World Volunteer Service, redefinition of psychological markers such as income, status, time and task etc.   The closest historical parallel to this type of combined vocational and consciousness raising that I have been able to find is the Workers Education Association (WEA).

In this sense the bushie sees the exemplar project as a living prototypical response to the question 'how then should we then live together?'

So this collective responsibility principle has the following dimensions:

BMP 3.a Charting the dimensions and facets of the global problematique

[techniques, approaches, examples and realities thereof]

BMP 3.b Capability to be participative and collaborative in doing this

and [ability to participate as a citizen in collaboration citizenship equivalent to the driving licence]

BMP 3.c Normative or moral awareness and capability

[recognising that the exemplar project should seek to respond to the key challenge from (1) above in the sense that 'given our differences, how can we, the worlds people, negotiate and generate a better world for our children's' children?

Ecological sustainability relates to this principle.

Learning, Yearning and Earning from and with the exemplar project exemplar project (see above 3), through professionalism (often informal intuitive self taught learner/autodidact), intentionality, proactivity, innovation, mentoring, concerning for the bigger picture and others involved in the project etc., while allowing for the strange attractor and X factor.

BMP 4.a Spreading the Bushie Word

A Artificer is most concerned to share her wisdom as afar as possible and this is done more by way of look-discuss-see learning at task apprenticeship during the development of an exemplar project than it is by classroom 'T'eaching of abstract cognitive theory and concepts. In this regard it is important for a Bushie to keep an action learning journal for learning insights both horizontal (more, broader and multi skills) and vertical understanding how the exemplar project fits with the big picture and vice versa and how interface systems, function and could be improved. Ultimately this 720degree approach to learning may be seen as 'L'earning and as consciousness raising

BMP 4.b Consciousness Raising

One may argue that ultimately this is the most important attribute of this principle and this principle is the most important one of 'bushieness'. In this sense one may argue that ultimately it is the quality of consciousness in the esoteric realm, which matters not ones actions that occur in the every day exoteric world. This is a vital, important and crucial point. A Bushie sees undertaking the exemplar project (and there will only be but a few in his life) a means for consciousness raising so it is by doing that the quality of ones thinking is enhanced – I do therefore I am.

BMP 4.c Holonomic Action Learning

In short this may be called Artificer Learning, Artificer Learning, Futuring, Anticipatory Action Learning, Holonomic Learning and in some ways harks back and yet transforms some elements of the Workers Education Association (WEA) learning philosophy of technical excellence (often attained in an action leaning mentored context) and capability of participating as a citizen (as contrasted with 'follow your bliss' of the 70's and 80's i.e. your bliss is your right!! This approach is more follow your responsibility). To this is added the holon concept from Koestler, global problematique and citizenship, and learning loop.

Here learning may be related to *creative evolvability* (CE) commonly called sustainability, or even evolution, for this principle. Implicit in CE are the various dimensions of sustainability and learning. **NB:** This analysis is for Australia and its predominant European derived western technocratic culture.

Learning this is a particularly challenging 'splodge' word as there are many definitions and each relates to its own underlying philosophy. Nevertheless the word is critical to this e-book. Conventional definitions refer to learning being about conditioned (classical and operant) behaviour changes associated with the process of acquiring of cognitive knowledge. [Bloom's 1957 taxonomy of three dimensions of learning viz. knowledge, affective and psychomotor or in trainer's parlance knowledge, attitude and skills, did not establish any knowledges for the psychomotor dimension]. Generally speaking this conventionally 'conceived' as coming 'from' a curriculum and in the 'lived life' from experience. Learning is not considered to include for instance muscular knowledge or

artificer's techne which incorporate elements of all three dimensions. Unlike intelligence knowledge remains firmly cognitive. [5]

Learning as techne then has attributes of all three learning includes: 'kairos' expressed through 'prohairesis' which embodies agentic experiential anchoring in the lived life, muscular consciousness, visceral awareness, skilled expression (artisan) and manual dexterity, cognitive acuity and mental dexterity, visual aesthetics, auditory coherence, tactile orientation, environmental synergy, intentionality, understanding, imagination, holonic interface and heterotechnic co-operation. Indeed learning is developing the ability to act ahead wisely. Learning in this sense is strongly even in majority, physiospheric and its noospheric component is seen as being in support of the former.

Learning then in terms of the conventional categories may be defined as: the (change in behaviour through the) *gaining of cognitive knowledge* or in terms of this e-book the *gaining of wise psychomotor empathy*. Learning conventionally is seen as: (1) cognitive (2) potentially manifest as behaviour (3) individual (4) deriving from the curriculum cp. the lived life (5) sees action as separate from knowledge, derivative and secondary.

Learning is seen as closely allied with techne (inc. projects and play), indeed learning may be defined as '*consciousness expressed through wisdom*' or '*action generated by fun*'. Learning is seen as primarily as *enactive not cognitive* and thus includes as embodied in ones action awareness and understanding which in turn means learning is *embodied wisdom through right action and reflection*.

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[5] Cognitive and affective learning has been extensively dissected not so with psychomotor. Three approaches which, in my opinion, come close to the essence of the Artificer are:
(1) Dave (1975) and discussed in this e-book (Ch 9:The Singing Tool - see section on Defining and Applying Mimesis). His categories of psychomotor skills are: **Imitation:** Observing and patterning behaviour after someone else. Performance may be of low quality. Example: Copying a work of art; **Manipulation:** Being able to perform certain actions by following instructions and practicing. Example: Creating work on one's own, after taking lessons, or reading about it; **Precision:** Refining, becoming more exact. Fewer errors are apparent. Example: Working and reworking something, so it will be 'just right'; **Articulation:** Coordinating and explicating a series of actions, achieving harmony and internal consistency. Example: Producing a video that involves music, drama, colour, sound, etc.; **Naturalisation:** Having high level performance become natural, without needing to think much about it. Examples: Michael Jordan playing basketball, Nancy Lopez hitting a golf ball, etc.
(2) And Simpson (1972): **Perception**: The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation; **Set**: Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets); **Guided Response**: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing; **Mechanism**: This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency; **Complex Overt Response**: The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce; **Adaptation**: Skills are well developed and the individual can modify movement patterns to fit special requirements; **Origination**: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasise creativity based upon highly developed skills.
(3) These of course are known as **Gross Motor Skills** and **Fine Motor Skills** in Early Childhood Development. The former, strongly associated with Intelligent Narrative Play, have all but disappeared form ECD in Australia due to regulatory and legal pressures. Indeed a generational tragedy in the making. Where may I ask herein is the Dignity Of Risk?

BMP 4.d The Physiocourse/Practicourse/bushcourse

Physiocourse/Practicourse/bushcourse is an adaptation of the physiosphere and a term that represents the 'non instrumental' instrumental discourse whereby one moves to the physiosphere for the integration of noospheric understandings into the physiosphere not vice versa. This level of 'reverse discrimination' is called for in today's world and if undertaken properly is designed to lead to the re-integration of doing and thinking, of the physiosphere and noosphere. This is the type of communication artificers often have after a job about how they had to do such and such to achieve this and that and this embeddedness of thinking and doing, always emerges from the 'lived life' after 'being on the tools' e.g. for that day or week or to redress a particular problem.

Here the conversation is not noospheric with illustrations from the physiosphere it is the other way round with occasional theoretic illustrations however the thread is thoroughly grounded in the physicality of the day to day life. Deconstruction however shows this most vital and yet most ignored form of conversation is mutual aid learning literally 'at work' and is vital for the transmission of learnings that day and so forth a sort of small scale holonomic mutual aid action learning circle.

Many of us misinterpret such discussions as being from page 101 of the trade instruction manual, however nothing could be further from the point in that these discussions are always hermeneutical about the practice, thinking, physiospherically based ideas and actual actions as to how the contingent occurrences in the environment were harnessed or mastered or overcome or addressed or bypassed or remediated in order to get the job done. These discussions are often also between trade areas and can include management 'as one of the boys'. Yet this true 'M'en speak, a sort of after hours techne talk. They are often accompanied by laughter, some swearing and sometimes a cup of tea or even a beer, and frequent gestural references to the physiospheric object involved. I am sure this is what happened after each hunt in Neolithic times.

[Such conversations are very challenging for those of us embedded in the noospheric world of the academe, and we see it as a waste of time. It has taken me the duration of the research program to come to terms with this and only now I can listen and sometimes participate (as I am a gofer or trades assistant in the overall project and so participate in the physiospheric experiences as they occur - I also have a direct interest in these discussion as I pay the bills and I can pick up how the job is going from same) in such conversations (for up to 15mts any more is still a bit of an ask). PW]

Towards a revised definition of Artificer/Bush Mechanic

Based on these four key outcomes of the Artificer/Bush Mechanic action research project we may now postulate a new definition of same.

A Artificer is someone who, over a period of years and with substantial effort, resources and commitment, and as part of their responsibility as world citizen, participatively and anticipatively conceives designs, establishes and learns from an exemplar project established on an integrated collective systems basis to artifice i.e. design, develop and demonstrate in particular way(s) today a better world for our children's children. [Paul Wildman No. 2:21-02; comm.15-02-2005]

In short *someone who acts ahead wisely* – an embodied form of the word Prohairesis (choose ahead wisely) eg. global problematique (4th C Greek), with practical wisdom Phronesis – mechanic bit - and inclusive discourse Parrhesia – i.e. the social holon.

An initial taxonomy of Artificer Levels

The primary Grounded Theory category is the Exemplar Project Artificer (A4.1) and the other three levels of Artificer are organised according to the extent, degree and depth of meeting the four grounded categories. This is where the noosphere and physiosphere indubitably meet in the hands of the one Artificer. In this regard then this eBook argues that it is this prime category that is to be used to establish levels of Artificers. One level is not better than another all are necessary and all feed into the others.

There is a further dimension to this taxonomy that is intensity so each level has an intensity variation ranging from commitment at weekends to all of life so to speak, and depth of involvement etc. Further while the spirit of the Artificer is the same in all, yet its expression deepens and varies vastly and progressively between, levels. The progression between levels is holonic for instance A6 contains all 5 other levels within it, and so on, while the progression is cyclical as shown below after becoming a Global Artificer (GA) one then becomes an Emergent Artificer (EA). In general within a level the two sub-levels can be swapped. Generally speaking six or so levels of Artificer can be established comprising three Macro Artificer Categories: pre-artificer, artificer, and post-artificer as in the table below:

Table 10 Identification and Taxonomy of the Six Artificer Levels

Level	Artificer Type	Exemplar Project; C1 = EP	Artificer Criteria: C1=EP; C2=SH; C3=GP; C4=AL	For instance
→[Macro Artificer Category ~ MAC A] Emergent Artificer (EA) →				
A1.1	Apprentice	Small project under supervision	C4 via. mimesis is primary focus	Apprentice fitting a window under supervision
A1.2	Handy/odd job person	Mr(s) Fixit around the house, yard	C2 & 3 not directly relevant to C1	door latches, cupboard latches, leaky tap, concrete path laying, volunteering
[MAC ~ B]Artificer (A) →				
A2.1	Sports person	Win a championship /gold medal	All criteria directly relevant to C1 esp. C4	Match winning goal, exemplar team work
A2.2	Artist	Sculptor, Dancer, Painter, (performance poet).	All criteria directly relevant to C1 & C1 itself is somewhat transcendent	Painting, art & dance work, drumming
A3.1	Tradesperson	Journeyman's piece	All criteria directly related to C1 which is a project/contract, seldom related to the other criteria	Sound house construction etc.
A3.2	Artisan	Specialised Finesse - masterpiece	Provides an exemplar subsystem to an overall EP	Beautiful piece of jewellery, motor re-build
A4.1	Project Artificer	Life Project e.g. a boat, house etc., farmer - master project	Meets all 4 criteria yet the EP & thereby C2 & C3 fit the EP not the GP	Boat builder - the EP that this eBook is based on, gardener, seamstress, chef
A4.2	Professional Artificer	Military mission, Cancer operation	Meets all 4 criteria yet C2 & C3 fit to job not the GP	Military strategist who also fights, surgeon
[MAC ~ C]Global Artificer (GA) → [Emergent Artificer]				
A5.1	Indigenous Artificer	Meets all 4 criteria within tribes world view	C1 (& thus C2-4) fits into mythos of the tribe	ABC Bush Mechanic Series, arrow, axe, basket & food making; http://www.fbo.com.au/movie.asp?ID=10187 - Indigenous Bush Mechanics web site http://www.abc.net.au/message/archive/bushmechanic/ Indigenous Bush Mechanic ABC TV series by episode http://www.bushmechanics.com/pages/bush_mecanics/body_bm.htm - more general information on indigenous bush mechanics
A5.2	eNuffer Artificer	'Enough is enough' lifestyle - self sufficiency & reliance	Meets all 4 criteria	Lifestyle as Exemplar, Bush Mechanic under the systems radar type lifestyle. The artifice of eNuffering
A6.1	Global Artificer	Ecovillage	C1 exemplarifies itself & embodies fully the other three thus expressing the soul & spirit of the artificer	Arcosanti provided the originator helped design and construct the project http://www.arcosanti.org/project/main.html; some intentional communities/eco-villages
A6.2	Elder	Eldership, stewardship, youth initiation, ancestor & forecestor respect	Meets & transcends all 4 criteria through linking to & inc. eNuffership & Artificership	Global Elders http://www.theelders.org/ the artifice of eldership

Source: P Wildman V7: 01-2008. **NB:** (1) these are regarding the exoteric Artificer, (2) one level is not better than another all are necessary and all feed into the others, (3) C1=EP=Exemplar Project, C2=SH=Social Holon, C3=GP=Global Problematique, C4=AL=Action Learning

Bushie Blockages – critiquing the Artificer approach

The following are some of the principle critiques of the bushie and represent the some of key blocks to broader success. If the reader is aware of others I would be most keen to include them and their resolution.

1. Too easy to get lost in Compliance and monitoring

Artificers once they commit to a project and given the complex inter-related nature of projects can be so caught up in day to day compliance, monitoring, bush fire fighting etc. that they loose site of the big picture and have no time for strategic or broader discussions, deliberation, reflection and action.

2. Exemplar projects represent Instrumental not Normative or Integral considerations

Bushies can become so enmeshed in the technical or 'instrumental' aspects of their project that they forget the ethical or 'normative' dimension. Indeed some philosophers would argue that Bushies are by nature not normative and only instrumental. Normative considerations emerge from the question - How will this exemplar project improve the way we live together today and help generate a better world for our children tomorrow?' This is a matter that should concern bushies as often exemplar projects can be misused to subjugate others.

There are other 'takes' on the Exemplar Project, that take the position of 'instrumentality+' or even 'post conceptional instrumentality' (Ch 12) for instance:
(1) **Hellenistic Therapeutic Community** - Active Practical Wisdom - the wisdom of the ancients anew [see Appendix K A short history of Western philosophical thinking related to the Artificer concept from 600BC to the present]

(2) **Evolutionary imperative** - the primacy of manual and mental dexterity in evolution - the singing tool - hand knowledge [see Chapter 9 - The Singing Tool]

(3) **A site of dissent -** Post-modern critique of the existing epistemology and show how the cognoscenti discourse displaced other discourses in the west esp. that of hand knowledge and the artificer - domestic and industrial. In short the artificer provides us with a robust site with which to critique the discourse of text - the totalising impact of the written word - of the cognoscenti. Here a post-conceptual space can be opened wherein the artificer can breathe anew. [see Chapter 12 – From Poststructuralism to Postconceputalism]

(4) **Ethics** - Kohlberg's (1976) Level 3 post conventional ethics stages 6 (golden rule) and 7 (ultimate compassion) links directly to 'walk (socially) your talk' so to speak and directly engages the need for exemplar ethical projects. [see BMP 1.l The Exemplar Project, Artificers and Ethics]

(4) **Human needs** - Barrett (2005) extends Maslow's (1943) five levels of human needs. [summarised below, see Figures 1&2]. Barrett adds, levels 6, 7 and 8 in Figure 2, while I suggest level's 9 and 10 in Figure 2, as a balance/mirror image to those in Figure 1.

Figure 1: Maslow's hierarchy of human needs

	Actualization
5	
4	Status (esteem)
3	Love/belonging
2	Safety
1	Physiological (biological needs)
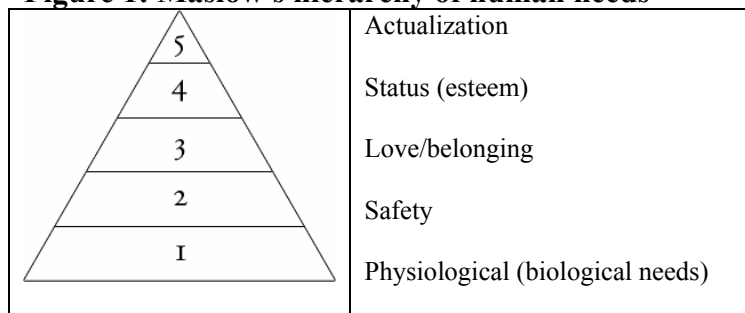
Source: P Wildman (2005) drawn from Wikkipedia article on Maslow

Figure 2: The 10 levels of Human Consciousness

10 Collective-Actualization - planetary consciousness

9 Status (esteem) - planetary citizen

8 Service to Humanity

7 Making a difference/Making it happen/Be the change

6 Meaning in Existence

5 Self-Actualization

4 Status (esteem) - agentic citizen

3 Love/belonging

2 Safety

1 Physiological (biological needs)
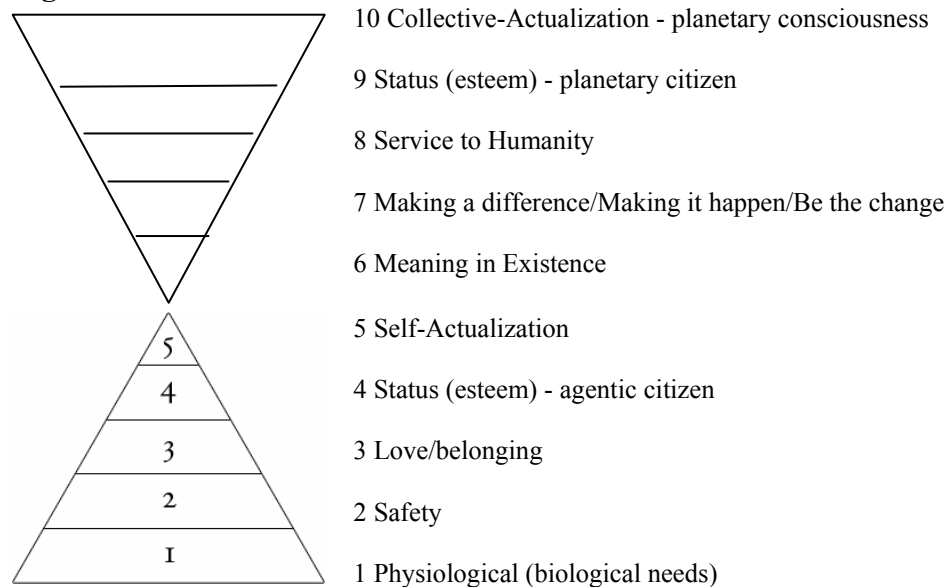
Source: P Wildman 10-2006 based on work by Barrett (2005)

Observation: Barrett (2005) consciousness levels 7 and 8 in Figure 2 clearly link to the ability to 'do' to a 'do-ocracy' to action to shaping and could be seen to link to Wilber's (1995), (2000) integral thinking of inner-outer; personal-collective, however the Artificer approach does strongly advocate enactment and its design. A Wilberian approach generally lacks or even eschews such 'instrumentalism' or 'physiospheric', and remains firmly noospheric.

3. ESD and the Need for Nested Systems within which to nest the Exemplar Project

Artificers once immersed in an exemplar project can dive into the inter-relationships between systems within that project such as for instance the design of a community governance system, or boat, or motor etc., and loose the ability to see how the 'exemplar project' system is nested in broader systems and ultimately in the social holon as in BMP 2 (Bush Mechanic Principle 2). This demonstrates that the environment in which Artificers operate to produce their Exemplar Project is a holonic one and thus we see nested systems as crucial aspect of ESD/Artificing and the Exemplar Project.

4. There are so many organisation's doing so much good for a better world tomorrow why DIY?

Good Q, however for many would be social activists and social innovators NGO's just don't cut it any more. Non Government Organisations | Non Profit Organisations and Voluntary Groups | Citizen Action Groups and Third Sector Organisations [NGO | NPO |

VG | CAG | TSO] all have a fatal flaw – they don't work. They don't work for most of those in them or for many of those supposed to be helped. Appendix I details some reasons and background rationales for this, as well as outlining the size and importance of the volunteer or third sector. This paper considers Artificers to be in the third sector a sort of privateer single person TSO, however I acknowledge to most the bushy does not fully qualify for this accolade. Agreed busies are 'I'ndividuals however a Artificer in terms of this paper is very much a global citizen and although a bit of a loner she does try to help others and further more an association of Artificers would come very close to qualifying as a TSO.

5. Where is the fit with the Global Problematique?

The exemplar project can be so demanding that the links to the global problematique can be forgotten. These need to be renewed every couple of weeks as new two way information can assist in the clarification of the direction of the exemplar project and also in the understanding of the global problematique.

Critique Rejoinder

In response to these and many other critiques, many valid, of the Artificer ideal I offer the following rejoinder 'Yes … and …? The concept is a method of *practical social innovation* it does not aim to, and is not designed primarily to answer the bigger normative, nested system or global problematique questions, nor is it designed in isolation from these questions. In other words the concept of Artificer is not a theory of, nor approach to, analytic philosophy. It does however offer a technique, nonetheless essentially instrumental, to outwork certain values, ethics and principles that derive therefrom.

A sound exemplar project can (a) flow downward from the imperatives that flow from the global problematique and (b) be a crucial part of a bottom-up demonstration of the possibilities for addressing pressing questions at present. In any event the Artificer and Exemplar Project concept do need to articulate to broader and deeper ethical questions, I maintain however that undertaking an Exemplar Project as outlined in this e-book will compel these questions to be raised and hopefully addressed and actioned. This dynamic of the particular project intertwined with the global problematique is reflected in the above definition.

Chapter 8: *Sauvage Dessein* and its role as a 'natural 'D'esign process' in integrating the exemplum, techne and the exemplar

Clearly the exemplar project is a tangibilisation, concretisation or even 'eMagine' or 'imagineering' of certain general principles of design and aesthetics as well as a certain moral scaffolding i.e. an exemplar project embodies the exemplum which for instance includes a view of eudemonia, the good life or what we may call a flourishing humanity. This in ancient times was a crucial part of *active practical knowledge in action* what was Philosophy. In this section we explore the meaning and components of the Exemplum and relate the concept to the Exemplar as in exemplar project.

Later in this chapter we will explore what has been called *Sauvage Dessein* for 'Future Primitive' and its immediacy that we see concretised in the 'exemplar project'. Such living design is based on what Alexander (1995) calls natural unfolding, indeed Heidegger's *aletheia*, from the earth. Indeed some would claim such a natural unfolding process blending thinking and doing is nothing less than our natural 'birthright' as humans. In this eBook we explicate such design as the 'D'esign P-I-D-I-L heuristic where thinking braids with doing, the Builders algorithm is replaced by the Artificers heuristic, the architect joins the builder and the builder does design, the incremental change leads to macromental results, the micro dances with the macro, the exemplar is unfolded and revealed and thus the Artificer becomes the Maestro the Wizard so to speak. I believe deep within us we long again for a structure of society wherein this *unfolding*, like that in Nature, can be re-established as a natural process. The Eros of *aletheia* can once again usurp the Thantos of Modernity. As the motto for Maserati says Excellence through passion.

Modernity however interrupts even irrupts this flow by separating its essential components of thinking and doing each directed or channelised in different directions the former being valorised and the latter pilloried. Each of these flows can then be controlled and mediated by 'authority' and thence its handmaiden 'education'. We are not talking of a return to the swamp or the deification of nostalgia for a supposed lost glory rather here we are talking about pathways or even chreodes through modernity's 'configuration space' or complexity's 'probability space'. A sort of post-neo-modernity through a certain artificer oriented morphology of living process.

Rather than bemoaning the loss of this species we need to spend more time finding the tiny scattered specks where this living design by artificer still survives.

Sauvage Dessein and the Exemplum - the yin counterpart of the Exemplar

Humanity as 'hu*manual*ity' or 'human*idea*lity'?

Historically over the past two millennia and in particular since the industrial revolution this eBook argues we have lost the former from millennia upon millennia ago, and deified the latter. We can see the shift in how over the millennia the exemplum has shifted from, and replaced, the pagan grounded goddess to/with the abrahamic sky king god.

Introducing the Exemplum

The exemplum is a moral story even the dream time story i.e. the yin, in which the exemplar i.e. yang, is embedded as part thereof. The exemplum is thus like the Mother drum in African music the drum that carries the solo of the smaller Father drum. For

instance how this particular exemplar helped educate the children of a widow and convict a thief. The English word exemplary comes from a conjunction of exemplar and exemplum. Often used by preachers in sermons and related to parable.

At once the expression of ones best artificer efforts and the concrete distillation and expression of the general principles involved in the actual exemplar project. This then is the retroductive moment of the *Exemplar Project* as we move from the concrete project to the individual and her *techne* to, and from, the general principles embodied in the *exemplar project* and between the two. Consequently the *Exemplar Project* is at once a masterpiece (distillation of the *techne* of the individual) and an *exemplum* (concretisation of the principles therein embodied)[6].

In this sense the *exemplum* is a story which includes things such as: original idea, design intention and principles, theoretical concepts, engineering criteria and formulae, principles behind standards and regulations, aesthetics, sub-system interface, whole system synergy, and especially harmony with the customer and ultimately the universe viz. link to the 'good life'. Substantial use was made of the *exemplum* in this manner, applied to philosophy in a medical analogy by the Stoics a branch of the Epicureanism in 4th century BC Athens, in that 'T'he aim of philosophy the individual is to assist in human flourishing or eudemonia. Nussbaum (1995:339).

This eBook also proposes that the exemplum as a concept is applicable to indigenous mythological cp. mathological understanding of the cosmos with their 'dreamtime myths' as in effect the exemplum which carry the exemplar within. Here we start with the story and speciate it into the exemplar rather than the reverse.

The Exemplar Project as Savage Design - *Sauvage dessein*

When projects such as buildings etc. come closest to something truly valuable, something authentically living, they reach an archetypical quality, a certain 'savage' core. Alexander (2005:640). This 'savage' core will arise naturally from authentic Heideggerian unfolding and form the fundamental processes of living design. In turn this archetypical even 'exemplar' quality bespeaks a further 'underlying quality' of unity - the exemplum.

Here Savage can be used to describe a certain characteristic of the 'ground up' 'living design and construction' type exemplar project that is its 'savage design' in its French context or 'flavour/aroma' **Sauvage** meaning authentic, untamed, unweakened by civilisation or pseudo sophistication, directness, grounded, unencumbered, earthy viz. 'cutting through the crap', pointed, original and **dessein** as in project with its intent, design and plan. Here we have a design emphasis on 'naturalness', and 'ordinariness' with a painstaking attention to, and respect for, the ordinary, the vernacular the particular the local the lived life, in short sauvage viz. *'simple, grounded, direct and profound'*. This is the grounded meaning of sophisticated **where thinking is not separated from doing**, and indeed this meaning of 'Savage' can be found in the work of authors such as in particular Levi-Strauss (1996), Goody (1997), Wilson (1998), Gibson and Ingold eds. (1993), Taylor (2004) and Alexander (2005 bk3:640-676) as well as Turnbull (2003). It is also the meaning of 'savage' and 'design' as used in this work.

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[6] As used by Nussbaum *exemplum* is used in the Stoic Epicurean philosophical sense and expands somewhat the conventional meaning of 'brief story used to make a point in an argument or to illustrate or concretise a moral truth or principle' to include 'the set of principles moral and otherwise involved. For Nussbaum (1995:339) the exemplum is better than abstract ideas in that it is narratively based and vivid enough to allow one to imagine a different way of perceiving ones and likewise the actor pupil has no bias with regard to it nor confusing surges of feeling as with the specific exemplar project which is active practical knowledge in action. The exemplum often a narrative illustrates the retroductive link between the particular and the general i.e. between the individual exemplar project and the good life so to speak.

Sauvage dessein as living structure that connects us to our unfolding world

Indeed these and other authors would argue that such *sauvage dessein* is nothing short of a birthright and a statement of a living system we call here Exemplar Systems Development. This according to Alexander (2005:682-3) is nothing less than the inner language that can connect us to our inner soul and our outer world that is Gaia through the unfolding that is the Exemplar. That is through this *sauvage dessein* we can obtain knowledge of living structure which is intimately connected to our knowledge of our own self.

For instance I well recall a short sojourn into the bohemian world of the early 1970's when I was strongly urged not to listen to a particular type of music with strong base as this was not 'intellectually pure', 'crude' and 'wild African'. Rather certain types of jazz were advised which, had no base. I had no way of understanding these missives however I knew I liked base and I liked it heaps with its direct connection with my gut and I still like how it moves the buildings around me even the ground itself at times. Even to the extent of buying special speakers with 12inch silicone coated woofers, which I only got rid of mid 2007, to emphasise and sharpen the bass sound. On reflection it was that the woofers offered a *sauvage musique* which was not considered intellectually pure by the intelligentsia and cognoscenti, yet was crucial for a **living sound**, one still finds remanents of this style fascism to this day.

As such *sauvage dessein* which uses living processes to unfold potential is our birthright , removed by Modernity, such *dessein*, I submit, underpins and directly informs, the concept of Artificer and the Exemplar Project in this eBook. Such design exemplum then is *earth unfolded* rather than *sky concretised* viz. a certain inductivity cp. deductivity viz. a posteriori cp. a priori approaches to process.

Linking the Exemplum through Techne to the Exemplar

As the general propositions become better and better embedded in the individual's techne they suggest a new way of seeing and adapting the concrete *exemplar* case; and as the reworked concrete case as an 'exemplum' is 're-viewed' (seen again yet anew) gives force and vivacity to the general proposition and principles embodied in its construction and operation. Nussbaum (1995:339). Here we deliberately aim for transference wherein the exemplum is better than abstract ideas in that it is narratively based and vivid enough to allow one to imagine a different way of perceiving and undertaking ones exemplar project.

As such the exemplum is similar to the parable and a lot of folklore yet different to the post modern simulacra or the Platonic ideal. For instance in the former the simulacra is in effect a phantasm, though a necessary and most useful one, a ghost constructed so we can believe in something. It also functions as a post modern tool for situating and critcialising a particular conventional belief and in the latter the ideal exists within the rim of heaven if we can but by reflection and contemplation go there and gain access to this cosmic algorithm. Whereas in the case of the exemplum it is more Aristotelian – build as you go so to speak. Furthermore the *exemplum* speaks with many voices a sort of 'musics' of the spheres and can thereby allow one to hook ones exemplar to broader meanings and social relevance as well as also being more available to a pupil because the pupil has no bias with regard to it.

Beyond the Exemplum - Expanding & Deepening understanding of the Exemplar

This retroductive excellence however for the Stoics can only produce what they call an acceptable act or *kathekon*. To become a fully virtuous act, an act that is part of human flourishing, part of eudemonia, or *katorthoma*, the act must be done 'as' the wise person would do it – with her heuristics, insights, skills and compassions etc. – all appro pos to

virtue, to do unto others …….. General content rules or even specific instructions cannot therefore produce a correct result as these outline what a person ought to do but not 'how' they should do it in the sense of *where they are coming from* when they do it.. Exemplar do not by themselves have this procedure, which includes motive, tone, response, skills, expression, intensity, devotion to reason, level of methodicalism and so forth, the procedure needs to be explained and demonstrated in a master-artificers heuristic. Nussbaum (1995:339-340). In an ultimate sense ones lived life becomes an exemplum.

So techne as discussed in this e-book is a derivative of katorthoma rather than as an aggregation of individual behaviourally determined competencies.

The Exemplar – a fusion of philosophical reason and virtuous action

So the *exempla* – the concretisation of the exemplum – at once fuses two apparently separate activities viz. philosophical reason and virtuous action. That which makes god action virtuous is the dedication to reason out of which it grows its raison detre and the exemplum toward which it grows its entelechy. Here we can see echoes of moral consciousness and the emergence of what Habermas (1992) calls communicative action. Nussbaum (1995:341)

The Exemplar – a mirror to ones soul and an echo of the Universe

Even this however is not the end of the story there is yet another philosophical moment, a reflexive one whereby the fusing provides a light for the artificer into her soul to understand a little more of the meaning of life. The *exempla* then become a mirror to such depth perceptions – a mirror of human nature cp. Rorty (1980).

Seneca implicitly compares the exoteric exemplar with the esoteric spaciousness of the soul as: a dark secluded grove, formed by the overarching branches or to a cave made by fallen rocks that holds a mountain on its back or to pools that seem sacred because of their darkness or their immeasurable depth, ultimately linking to the broader vistas of the Universe and the harmony of the spheres. Nussbaum (1995:341). Herein Stoicism like Epicureanism self encounters Self. The reflexive moment of this is to balance external contemplation of the exemplar in 'daylight' with internal reflective mediation on the exemplum at 'night'.

Chapter 9: The Singing Tool - getting crafty - tools, language and cognition in skill development and human evolution

Gregory of Nyssa, a church father, died in 396AD, and maintained that 'if the body had no hands, how then would the articulate voice be formed in it? Hewes (1993:22). In this chapter we explore the importance of manual and mental dexterity to the evolution of the human hand and what is called in this e-book - hand knowledge. Indeed one could postulate that Nature is the broader canvass on which artifice is written - with evolution being a form of artifice even and thus the Artificer has but taken this energy/ inspiration within and applied it in the human dimension or as I say here the social holon. In this broad context it may be argued that manual dexterity and artificing with hand knowledge can play a powerful part in potentiating other human abilities such as intellectual, physical and psychological, so that the tool and the user sing a duet.

The 'singing tool' and the Artifice of Nature

It may be argued that there is a 'natural' urge even need in humanity to diversity, to continuous and sometimes stochastic improvement (kaizen and kaikaku change respectively), to self organising algorithms and conscious creative heuristics, with a balance of mutual aid and competition for environmental niches. As argued elsewhere in this e-book the 'singing tool' can be found in a garden, a toolshed, a kitchen, or ultimately a forest or sea.

In our economic transactions we continually make **the commons or monopoly** there seems little room these days for private enterprise. All these speak of a commonality between the 'A'rtificer in human nature and 'a'rtificer in human nurture. The former however is beyond the scope of this e-book, and is touched on in Appendix D and F. In this e-book however we will focus on the latter - the 'a'rtificer in human nurture and leave the reader with the thought that the 'Artifice of Nature' or Gaia herself as the larger canvass on which the 'artifice of human nature' is painted.

The 'singing tool' and the evolution of humanity

One unique aspect of the human species is the way that we combined technical, planning and linguistic behaviours into a rich*, interactive (interfacing) and self-propelling cognitive complex based on a living heuristic of continuous adjustment in the real world.* In both humans and apes tool-using and tool-making traditions are inseparable from social behaviours such as sharing, learning, imitation and celebration. Gibson (1993:12). The grammar of making and using a tool for Gibson (1993:10) is similar to the syntax of a sentence or especially the cadence of a song which draws strongly on gestures, social context and agency.

In seeking to answer the question wither Vocational Education? We are compelled to ask the associated question of – *what is a most efficacious manner of learning for the practical aspects of a fulfilled life?* Thus as we seek to explore the basis for human learning and are compelled by necessity, in my view, to ask the most basic question – what then are the key achievement of humanity that make us human and identify key attributes of how we learnt to do that? A satisfactory answer here I believe has to include at least two attributes of our evolved humanity: our ancestors learning speech and their tool making. Nowadays this complex interrelationship has to an extent been reduced respectively to 'textism' and behaviourism? So now we set off on a quest to find

out how our ancestors may well have learnt these skills, often self taught yet involving some degree of hard wiring, and then explore the relevance of these answers to modern day education of the human species. [this is not to be considered an anthropocentric statement as it is clearly acknowledge that other species to various extents use speech, abstract reasoning and tool making]

Talking V's Seeing forms of language

Anyone can talk in the dark but we can only see during the day. Similarly sign language gives us some idea of how close dextrous manual gestures and spoken language can become. Indeed Ingold 37 uses this type of argument to maintain that the first language consisted of mutual signs imitating the operations of tool use. Tool making and use generally requires sight and is basically visual (visual-gestural-dextural modality) and thus poly-active in that the subject needs to integrate several senses into the modality and can be seen whether he or she wants to be seen or nor, whereas speaking (vocal-auditory modality) is inter-active as it requires sound and is auditory i.e. the other person must speak or make a sound to be heard. Ingold (1993d:36-37).

Tools artefacts of the apocalypse or the second coming?

Tools, through their manual and mental expression of dexterity, are the deliverers of humankind's creative ability to change the world around us. In this way they are of essence simultaneously destructive (Thantos) and creative (Eros) - simultaneously both artefacts of the gods and demons.

I'd expect we initially used tools to extract seeds and somewhere we crossed the line as hunters and perhaps about that time we used tools to fight each other. These tools evolved into weapons of mass destruction and are probably the leading edge of much of modern technological advance in the military/industrial complex most advanced in the USA. It is all built on maintaining power through aggressive use of weapons. However to think more broadly we use tools/weapons with even greater destruction with our earthmoving, dams, chainsaws, fishing factories etc. etc. rapidly destroying the remaining natural habitat. This seems part of our aggressive war against nature. I'm not sure why we feared the forests so much that we have a meme now to destroy them.

So the jury is in tools can be used for creative evolve-ability i.e. sustainably or destructively i.e. non sustainably. It is the ethical context in which they are conceived designed built and applied that makes the difference. I agree however I would also argue that we are in such diabolical times that no sustainability is envisionable without tools and their constructive use.

Artefacts of the gods?

Gregory of Nyssa, a church father, died in 396AD, and maintained that 'if the body had no hands, how then would the articulate voice be formed in it?

Socrates spoke of the 'loom of language' and Homer saw the primordial name-giver as artisans or demiurgoi. Lucretius also supported the view that language was a 'natural' rather than 'divine' attribute of humanity. Hewes (1993:19-22)

There has been in the West a general lack of concern with the origins of the artefacts and artificers of the gods, or the artefacts of the myths of the gods or the artefacts of the gods in the myths so to speak. Where did they get language from? Where did they get their tools from? Where did their sumptuous palace abodes come from? Aristotle saw it as the

slave's role to do physical labour – it being beneath the task of the philosopher. Such inquiry into the origins of language and artefacts of the gods (in spite of the need for learning so evident in human children) was not regarded as a topic worthy of serious philosophical inquiry. Where did Noah acquire his ship-building skills? Tool making has always been seen by anthropologists in this light i.e. as secondary to the language skills and to be expected as very much a second level logically predictable attribute of a highly intelligent and manually dextrous 'tool using animal'. Hewes (1993:23-29)

Indeed Benjamin Franklin is reported to have said in 1887 'Man is a tool (making and) using animal' (PW) Hewes (1993:24).

Intriguing in the UFO community where the likes of extra-terrestrials is much discussed the issues often revolve around tool use viz. chariots of the gods and the like where remnants, for instance of a supposedly ancient battery, hieroglyphic rocket bike and the like, are used to support the X-File type analysis.

Artefacts of the demons?

Here we see the link between the singing tool and the singing of the Stuka bomber in World War II. Again as explored in the section on ethics and tool use Artificers Principle One (1.l) in Chapter 7 our species seems to relish in the use of tools for destruction for thantos. Its as if tools are demonic artefacts of the apocalypse, of the end times. And who among us looking around at the destruction we are heaping on our fellow man as well as fellow inhabitants of spaceship Gaia as well as the planet itself could not be deeply concerned about this link. Importantly once one extends the concept of tools to include for instance regulatory tools used by bureaucracies to control citizens we can see again that tools as regulations can work for fascism or democracy and sometimes there is little to separate them.

It is for these, among other, reasons that this report seeks to develop an ethical atmosphere for the exemplar project. An atmosphere even a biosphere even an ethosphere where intent and extent are subject to pre-existing ethical guides and future generational accountabilities.

Artefacts of the demos?

This e-book retains the hope that tools ethically contexted can be artefacts for extending the demos i.e. sustainable deliberative democracy. Indeed the ancient Greeks excelled in the use of tools to build the meeting places of the demos. Yet when we face a problem we can sometimes use the very processes and tools that generated the problem in the first place and unless we come from a different ethical position we will simply recreate the problem we are seeking to address - enantiodromia. Here we need a different logic for tool's application a more yin than yang logic - a more water than rock logic - in de Bono's terms. De Bono (1990). Or Conventional ethics in Kohlberg's terms. Kohlberg (1976).

Artefacts of Gaia?

For Aristotle, 'nature is at its best when it fulfils men's needs'. This from a Artificers perspective has to be a starting point. It is also the starting point for a serious ecosophy (ecological philosophy) critique of this 'utilitarian' and 'pragmatic' and 'constructivist' view of Nature, nature to be appropriated for the use of 'man'. This is hardly an escapable accusation other than to say 'what needs?' In that it may be the ecocentric humanity (cp. egocentric as at present) may well place a need focus for technology of the eudemonia of Nature including humanity.

Certainly principle three (global problematique) and to an extent two (social holon) point in this direction. So finally this e-book argues that the artificer stands as does humanity in

general esp. western society, accused of this criticism. It remains up to the artificer and the artificing process to render artefacts of Gaia which includes the demos, not artefacts of ecofascism or ultimately artefacts of the demons.

The anti-nature post post-modern technotopian transhumanists have won!!

These are massive issues far beyond the scope of this mere e-book. They remain contingent and unresolved. An extension issues is that do species and indeed Gaia herself have historico-ontological precedence over homo sapiens sapiens. The artificer can acknowledge the ontological interdependence of all species on earth inc. us. If we take this to its emergent end then as the post modernists say 'all is culture' and there is no external reality out there no stuff to artifice only cultural power artefacts of the intellect. So now nature has been not only sidelined but basically eliminated from consideration.

Indeed many post modern authors consider culture senior to nature and indeed the remaking of nature to fit culture is a viable and ethical end. Here we see a bizarre post post-modern twist whereby the critical social sciences have now taken over and become the hard sciences pointing out the cultural continent nature of 'so-called' hard scientific knowledge. And the New Age Silicon Valley cybernetic technotopians and transhumanists have triumphed. This is my great fear that the rationality, the logic base, of technology not techneology is being programmed into computers and robots and nanobots, transgenic entities and school curriculum's as we speak meaning that tomorrow we harvest will be technotopian, entropic and make Soylent Green look positively utopian.

A possible artificer rejoinder

The artificer principle as espoused in this e-book does not advocate such a 'power over' nature approach and it does this by first acknowledging the existence of external nature and also of depth of consciousness/understanding thereof. If further challenges this interpretation through its four principles insisting that the needs of Gaia must have primacy along with social wellbeing, learning and the exemplar project.

The reader, the artificer, however must decide, must choose. This is where the Artificer has to point beyond herself to a broader and deeper understanding of the calling. This is where a deeper consciousness of the interconnectedness of all things even a spirituality needs to come into play, nothing less than an ecologising of consciousness. Can artificing be part of the 'third way' i.e. (1) from egoistic dualism, through (2) monism (the awareness that "all is one"), to (3) the re-emergence of 'individualitae' now understood as ontologically embedded and interrelated with everything else.

Much artificing needs to be done we have gone past the point of no return, and the night is long.

The Logocentricist, Cephalocentrist and the Scriptist nature of much modern science

Ingold speaks of the logocentric obsession of cognitive science with its focus on intelligence and abstract or symbolic logic cp. practical thinking and imagination. Such logocentric thinking is predicated on the creation and continuous reification of a subject-object world dichotomy. Here the prime function of enculturation is the developing of abstract decoding of theoretic puzzles representative of the 'real world' (theories) with these forming the basis for the student's object-assemblies (tool-using behaviour). Here

tool-use re-engages the performative, artistic and poetic part of our nature in that it is part of the web of our lived life. Ingold (1993e:463).

Such views are strongly echoed by Wilson (1998) who sees society as **cephalocentric** (his term) – relying almost exclusively on cognitive and linguistic capability and not accessing the increasingly and long overlooked mimetic epistemology of dexterity. What this means for today's humans - some 200,000 years after the transition from Homo Erectus to Homo sapiens - is that our learning abilities and creativity are still very deeply connected to our manual capacities. The two are linked by dexterity.

In cultures such as ours that dichotomize 'mind' and 'body' and hold to what Wilson (1998:60) calls a 'cephalocentric view of intelligence,' whereby the importance of the hand-brain nexus is easily forgotten and the role of dexterity is ignored. As a result, we overvalue symbolic knowledge (the ability to manipulate words and numbers to describe or represent meaning in abstract theoretical linguistic symbols) while undervaluing 'bodily knowledge' or 'hand knowledge' (or what Wilson (1998:48) calls mimetic knowledge which he severely differentiates from imitation because mimesis includes elements of intentionality and understanding and capability generally manifest through dexterity i.e. learning or as we would call it here 'futuring'. Intriguingly and in support of the main thesis of this e-book when one considers human sensuality and its totalising depiction in Western culture as pornography, this obverse of the cephalocentric focus continues and indeed reinforces and reverses the mind body dichotomy that is it is the body and not much, if any, mind that is the focus of the 'event'.

Mimetics then are acts that embody a theory of knowledge, an epistemology, that manifests in intentional, representational and concrete acts (e.g. making a stone axe 1,000,000 years ago or an exemplar project today as discussed in this article) that are not mythic (symbolic narrative) or theoretic (abstract calculus) but mimetic. Thus they are not just copying as in monkey see monkey do, but replicating with understanding including intentionality leading to the capability to manipulate the elements of our physical environment to create meaningful actions and objects in our lives. For Wilson (1998:49) this mimesis involves the invention of intentional socially encoded representations and their articulation into communal reality.

In schools, Wilson writes, children 'who are most successful, even virtuosos, at using their hands to understand, build and fix complicated things in the everyday world around them' are often the same children doing very poorly on mathematically related intelligence tests. Furthermore one can see this respect for the mimetic epistemology behind the theories of education of Dewey, Steiner and others and also in the much of the intent of the vocational education systems. According to Wilson then such systems are not as they are seen nowadays as secondary for students who cant 'cut it' in academia, they are actually discrete and equal to the symbolic systems now so dominant in our educational arena.

Wilson's book can be rough going at times-there are several fistfuls of descriptive 'symbolic knowledge' stuffed in there, from paleo-anthropology to bio mechanics to philosophical musings on hand-oriented crafts such as juggling, rock climbing, and puppetry, sculpting, artistry and artisan level trade work - but I highly recommend it to those of you who feel, as I do, that your hands are quite literally the smartest things we own, further he maintains that the hand speaks to the brain just as surely as the brain speaks to the hand 60. This can be seen in any discussion where people who have to put their hands behind their back simply can't communicate properly. From Wilson's perspective gesticulation is part of the mimetic epistem based on dexterity. Certainly smarter than the stubborn Western brain that chooses to risk either ignoring or overworking them, seldom choosing to dance with or respect them.

Consequently Ingold (1993e:453, 459, 464) seeks an antidote to the abstract scriptist bias of formal linguistics. To this end he regards speech as a species of song and takes as his starting point the **lived life/engaged life/being-in-the-world/dwelt-in-world/communion of experience** the critical differentiation between the abstract and lived in worlds is that between puzzles and imagination, between discrete external objectivity and relational interfaces, between disassociated nature and the web of life. Here we see how the objectification of and commodification of nature has occurred so that it can be externalised and 'managed' by yet another elite. This is the human plucked from the universe is a mere absurdity type approach.

For Ingold (1993e:462-6) skilled practice cannot be understood as the mechanical execution of prefigured design organised by the theoretical systems planner rather it is the practitioner's continuous attunement of our thoughts and actions to perturbations in the environment without interrupting the flow of action. We do not have to think the world in order to live in it, but we do have to live in the world in order to think it. Here we see the difference between intelligence (living in a world of puzzles) and imagination (living in a world of persons).

Modern western science has come to view the ultimate human capacity as intelligence with its abstract conceptions and thoughts with language its vehicle and technology its means to convert scientific theory into scientific fact. Espoused as separate and discrete arenas he argues are yet related cultural artefacts, a rational theoretic understanding of the external world is turned to account for human benefit. Ingold (1993e:450). On the other hand we have techne where a concrete and rational experience in the external world is turned to account for human benefit and abstract understanding. This dichotomy is outlined in the following section.

On the distinction between mimesis and memesis. Mimetic theory leads to insights on how humans behave through the concept of copying with understanding, a concept vital to vocational education. Memesis on the other hand leads to insights on how humans think and communicate, through the generation, transmission and enactment of memes viz. a cultural unit (an idea or value or pattern of behaviour) that is passed from one generation to another by non-genetic means (as by stories or adaptation); 'memes are the cultural counterpart of genes', including how they summarize a lot of seemingly unrelated information into a new synthesis. Both are very important for the future of humanity. On this basis the Exemplar Project can be seen as an instance of Memetic insurgency and a physicalised anti-meme and the bushy as memetic guerrilla

From Stone Age to Phone Age

Learning today in the Phone Age can draw from our ancestors from the Neolithic (New) Stone Age via. a pedagogy of mentoring, demonstration, imitation and memorisation in what has been called a form of proto-apprenticeship, consider the mimesis embedded in learning how to sculpt the stone hand axe of 10,000 years ago. The status of being a tool here links to the user - this is 'my' stone axe; while the status of being an artefact links to the intention of the project - these tools helps provide food for the clan. Indeed as far as 10000BCE Natufian villages had developed of around 1000 people in some two hundred houses[7]. In existing non-industrial societies technical relations are technecal relations (tool-making/use/individual/ collective) are which Ingold (1993b:338-341) argues are located within social relations.

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[7] The Natufian culture existed in the Mediterranean region around present day Palestine. It was an epi-palaeolithic culture, but unusual in that it established permanent settlements even before the introduction of agriculture and formed the basis of later Neolithic cultures. Dakers (2006a), Dakers (2006b:147)

Escape from Logocentricism - Wild Science from the Savage Mind - re-enter this time from left field - as participatory consciousness or techneology

Many authors such as Berman (1981), (1990), Ingold (1993 various), Levi-Strauss (1966), Taylor (2005) have called for the 're-entry' even 're-incarnation' and potentially 're-sacralisation' of participatory inter-subjective and ultimately trans-subjective consciousness. By trans-subjective I mean more than inter human that is more than inter-subjective in that the human as participant is part of the consciousness of the cosmos[8] which is manifest as certain animals, plants, weather patterns, landforms, trade routes, ceremonial tracks and artefacts and crucially the relationship between them that is their interfaces etc.

The misery myth - nature as 'red in tooth and claw' as a key logocentricist driver towards modernity

Indeed Taylor argues that today we have an objectivist sky-king consciousness generating an aggressive version of yang technology and that into the Neolithic period (commencing several thousand years post last ice age) with a participatory consciousness generating an earth-mother mutualist yin technology where peace and co-operation was the norm. Taylor critiques even rejects the modernday all dominating 'misery myth' that ancient tribes, like Nature, were 'red in tooth and claw'. Furthermore he puts the fall as the schism between these two ontologies - in sharp focus around 4000 BC years ago - starting in the Middle East and Central Asia.

This myth then pushes us in the West into the arms of positivist science and the ubiquitous descriptor of modernity - that is progress - that one-way arrow like arc of time where through science we move from red in tooth and claw in ancient times to material welfare today. And so goes the issue of evolution as the survival of the fittest or the thrival of the mutualists i.e. yang V's yin - I favour the latter. Steel (1998). I argue that it is from the mutualist perspective that embedded and embodied learning, such as we see as the journeyman in the Middle Ages and today in remanets as the Artificer, is based on the lived life of the tribe/community most directly emerges.

Participative Mutualist Wild Science from the Savage Mind

This form of consciousness long associated with 'backward' indigenous tribes has given way to the objective incandescent light of objective abstract objectivist scientific universal

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[8] How we fit into the heavens: cosmography - a map of the heavens and how our consciousness is linked thereby - cosmomorphism, or at least physiomorphism Levi-Strauss (1966:221) where 'reality' is interpreted from the point of view of nature as is the case in many indigenous cultures. CP. anthropomorphism where the world is interpreted from a human perspective. Today we see this devolved to more of a narrow technomorphism where the world is interpreted from a subset of anthropomorphism that is technology, gadgets etc., whereas this book argues for a 'technemorphism' where the world is interpreted from the perspective of the interactivity of humanity (conscoiusness) and the cosmos

knowledge where individuals are just so many disconnected dumbed down supplicant consumers in an system of economic feudalism - the supplicant principle.   Such primitive trans-subjective science is based on the participative principle and has been called 'the savage mind' or 'savage science' by Levi-Strauss and if I may 'wild science' by myself. Such 'wild science' is always in every way participatory and can as Levi-Strauss argues also be 'objective'. By participatory I mean the person or persons involved always see them selves as participants embedded in the interconnected web of nature/life which embodies itself in land forms, artefacts, tribal arrangements, dreamtime stories for linking these.

Characteristics of the savage mind for Levi-Strauss (1966:261-263) are its tendency to totalise, its use of low-power histories, its timelessness, its use of visual myth to build its knowledge cp. cogitos ie thought and abstract theoretical conceptions, and can accept discontinuities, so that savage thought can be described as a system of concepts embedded in images which are in turn embedded in myths - a symbolic logic cp. numeric logic. Savage thought is visual-concrete-inductive, and what Levi-Strauss calls domesticated thought is textual-theoretic-deductive.

In this way and in accordance with authors such as those mentioned above in this section on can see such a consciousness in part reflected though somewhat darkly these days in an epistem that draws from the lived life based on a posteriori knowledge where theory is lensed through action which is seen as participation in the web of life. Consequently methodologies such as local theory, reflexive praxis, intelligent narrative play, artificing all expounded on in some depth in this e-book are examples, more or less, of tapping in to such an interconnected trans-subjective web of life.

Synthethical Reason, the Savage Mind and the Artificer

In his last chapter Leiv-Strauss (1966: Chapt 9, esp. 251) dialogues Sartre in relation to the savage mind, analytical reason and dialectical reason. For Levi-Strauss dialectical reason = analytical reason + action i.e. dialectical reason is tensed by its own efforts to transcend itself.. In this manner he goes beyond Sartre and reduces the uniqueness or sui generisness Sartre attaches to dialectical reason. For Levi-Strauss (1966:246) dialectical reason is 'always constitutive, in that it is the bridge, forever extended and improved on, which analytical reason throughs over an abyss, even it if its unable to see the further shore but it knows it is there, even should it be constantly receding'.

While acknowledging that 'savage thought' can be both anecdotal and geometrical and, I would add, geographical it may also be analytical yet for Levi-Strauss 'T'he question is - is it also dialectic? Levi-Strauss (1966:245). For Levi-Strauss, however the savage mind 'totalises', which at once can prevent dialectic thought yet for him it ultimately allows same. For he argues it is in that the savage mind refuses to allow anything human (or even living) to remain as an anthesis and thus alien to it that we see a principle of covert dialecticism emerge. For the Savage Mind using what may be termed Wild Science there is a congruence between practical imperative an schemes of interpretation, which congruence Levi-Strauss (1966:254) is now sadly lacking for the Left, who still cling to the historic period of such a congruence. This e-book then can be seen as an ethnographic attempt of sorts, to establish then explore such congruence between the 'exemplar project' and artificer learning as a scheme of interpretation.

For my mind dialecticism and analyticism etc. are techniques of reason that can be applied, in a moral philosophical sense, to the background categories of instrumental (means to an end) reason or substantive (end in themselves) ethics. Furthermore as can be see from this e-book I ague that for instance the Artificer, in embracing her exemplar project, has synthetical reason in addition to this dialectical reason. Further I argue for the logic of

action a sort of actlogic that moves beyond instrumental reason. So for me and for the purposes of this e-book: dialectical reason = analytical reason + actional or constitutive reason + synthetical reason and a step further I argue that an ethical dimension w.r.t ends is required so that ethical **dialectical reason = analytical reason + actional reason + synthet*h*ical reason** [the latter being a combination of synthesis and ethics (instrumental and substantive viz. bringing the parts of the nascent ethical whole together ethically in acting ahead wisely). This e-book argues that mimesis is a crucial aspect of dialectical reason.

I argue we can see such synthethical reason evident in the dreamtime myths of the 'savage mind' or the exemplar project of the artificer, in this light the artificer does use dialectical reason, inc. the continuous adjustment and refinement of action to ensure as far as practicable that the efficaciousness of the exemplar project.[9] This is what 'acting ahead wisely' means. In seeking to study the various artificers for this e-book and in seeking to identify the commonalities of their processes one is reminded of Rousseau's challenge 'one needs to look near at hand if one wants to study men; but to study man one must learn to look from afar. Rousseau (1783) quoted in Levi-Strauss (1966:247). In this sense Grounded Theory can be seen as such an ethnographic attempt to look from afar, so that we can identify patterns and indeed systems in human behaviour beyond the empirical diversity of, and within, our human societies.

An ancient right brain mode visual language?

Even in the face of overwhelming complexity the Right Brian mode, which is visual and not textual or word based, opts to work from the concrete visual mode, for instance drawing from experiential and 'minds eye' instances by taking a 'for instance' and 'thinking aside' to more general principles. Edwards (1995:45). She argues that a case can be made out for a Right Brain mode language.

Such a language would be:
(1) visual, (2) concrete (from the lived life), (3) relational, (4) diagrammatic inc. drawing and gestures inc. dance, (5) local and interstitial, (6) trans-temporal (present, past, and future are interwoven in myth - itself visual), (7) synthetical and mythological, (8) the circle, (9) simultaneous - in the eternal now and, (10) perceptive.

Rather than for instance our typical Left Brain mode language that is:
(1) linguistic, (2) abstract, (3) autonomous, (4) textual inc. logic and formulae's, (5) universal, (6) sequentially temporal (time goes in segments in one direction), (7) analytic and mathological, (8) the straight line, (9) deferred - sequentially and temporally, and (10) conceptive. [drawing from on Edwards (1995:53), Taylor (2005), Wildman (1996)]

Reference to many of the remaining indigenous pre last ice age languages indicate a strong content of the Right Brain mode in the language even to the point of the cosmological

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[9] Synthetical reason may be seen in certain regards as inductive reasoning from the particular to the general or a posteriori cp. analytical reasoning which may be seen as deductive reasoning from the general to the particular or a priori reasoning. Of course there is 'a combo' form or reasoning called 'retroductive' reasoning which combines the two. Synthetical reason is a part of what I call synthethical reason where induction/synthesis is used for ethical purposes for instance to 'act ahead wisely'. More broadly then 'reason' may be defined as thinking which links language, consciousness and logic, and actions. Animals can act logically but only the human animal can act reasonably - though he seldom does.
Levi-Strauss (1966:Ch9) argues that one can well make out a case for at least two types of dialectical reasoning. (1) Hegelian - the grande historical dialectic and (2) the petite hypothesis refutation dialectic - there are however substantial similarities (and differences). Further Levi-Strauss (1966:261) argues that history associated with (2) that is biographical or anecdotal (wild histories) histories are 'low-powered' not grande histories as in (1). Other types of histories he identifies are anthropological, cultural, millennial and anti-history e.g. the anti-history of the French Revolution.

system resting on totems, body painting and piercing, myth. In the terms of Australian Aboriginals, trans-temporal dreamtime myth, which are concretised in day to day ceremonies such that today in the concrete world is a reflection of yesterday in the ancestors dreaming world, and our dreaming today is their concrete world. Wildman (1996). Taylor (2005) also argues that many of these cultures were matriarchal and relatively peaceful. Clearly Stonehenge and related structures from this period indicate that such a 'non-literate' culture, which was matriarchal, without written language or conventional mathematics and centuries before the pyramids, could think abstractly cognise life after death, understand the movements of the heavens and undertake profoundly complex engineering feats.

The Fall (**Fall I**) in this sense around 6000 years ago (strangely in line with fundamental Christian beliefs for the Age of the World) has referents in many cultures in particular catastrophic floods whereby the co-consciousness nature and humanity is split, the 'I'/ego emerges, wars increase phenomenally, possessions become obsession, mutual aid becomes me first, the world becomes physicalised and the 'G' word arises later this trend continues towards monotheism some four thousand years later. Of more recent origins we can see **Fall II** emerge where by we move from being the centre of the creation on earth, to its circumference - the biosphere, to being expelled from it or certainly expelled from National Parks and Nature reserves in a 'use it and loose it traditional scientific management mentality' where humans are external to and in control of 'nature' or 'wilderness' [This dichotomy of the second fall may be seen in the distinction of Local and Global the former is afforded to beings and events in-the-world and is regarded as illusory and incomplete whereas the latter is afforded to being-outside-the-world and is regarded as more objective, real and complete. Ingold (2000:211). Here we have a 'global ontology of detachment' which is privileged by science and society over a 'local ontology of engagement/dwelling'

In art, where the savage mind still thrives, the individual artist and her 'method' and agency still matter, gaps are often seen as mysteries which have to be respected if they are to retain their power. The more one probes the more one deepens the mystery. Art disturbs - Science reassures. Edwards (1995:42). In this sense it would seem that the Right Brain mode and its associated language may well be the foundation of the Levi-Strauss's savage mind. Levi-Strauss (1966). In this sense the Artificer's exemplar project becomes a homologue for the Academic's thesis.

Consequently it could be argued that the savage and domesticated minds are together 'T'he two innate and equal moments in human mentation. A little like breathing - in | out; or blood pressure - systolic and diastolic; yin | yang; right brain | left brain modes; concrete | abstract; experiential | theoretical; synthesis | analysis; artificer | engineer; even like quantum theory where an atom can be a wave and a particle - 'either and' so to speak rather than 'either or'. In this sense human thought may be conceptualised as not necessarily textualised so that one of two modes for expression thereof may be considered equally valid that is visual or textual expressions. For instance in the phrase my thoughts remain formless though extant until the moment of their communication then they assume the mantle of words. Maybe they could assume the mantle of pictures as is the case in many ancient indigenous tribes - some of whom are still extant.

The epistemic triumph of 'a priori' knowledge based logocentricism

Epistemically, however a posteriori has given way to a priori knowledge. For instance conventional vocational modelling where each episode of action can for Ingold be resolved into a mental operation derived from a plan-construction and then followed by a lower level purely physical and operational behaviour based execution. Ingold (1993b:343). Here everything is seen to depend on 'the plan' the subsequent implementation of which is seen as a lower level mechanistic and behavioural process of manipulating external detached

objects as a means to the goal. ==This then is the conventional objective disembodied noospheric intelligence based/puzzle solving/object manipulation approach to tool use/vocational education==.

Such an a priori process, draws from an objectivist cognitivist even cephalocentrist position may well take intelligence to plan but not to implement - participatory consciousness is absent. This does not, however, help one (1) actually imagine beforehand the steps in construction of an outcome in which the tool will be needed/used or (2) the application of the tool, let alone develop the skills and craftsmanship to undertake the implementation in the physiosphere and thus (3) be thus involved with participatory consciousness. Working out what to do to ride a bike, or saving a tree is radically different to actually riding or saving one respectively.

An extract from Levi-Strauss on the uniqueness, yet modern day importance, of the Sauvage mind

The following extract is drawn strongly from Levi-Strauss (1966) and it may well pay the reader simply to read and reflect on the following two paragraphs which are the last two in his utterly remarkable book. These two types of thinking are called by Levi-Strauss (1966:262) analogical and analytical or savage and domesticated respectively. The latter being concerned totalising coverage of the cosmos with thought coverage, thereby removing inconsistencies and interstices where for savage thought the mysterium exists, through theory development the former is concerned with symbolically drawing from the concrete lived life.

> *Certainly the properties to which the science of the savage mind has access are not the same as those which have commanded the attention of the science of today. The physical world is approached from opposite ends in the two cases: one is supremely concrete, the other supremely abstract; one proceeds from the angle of sensible experiential qualities and the other from that of formal theoretical properties. But the idea that, theoretically at least on condition that no abrupt changes in perspective occurred, these two courses were destined to meet, explains why both, independently of each other in time and space, should have led to two distinct though equally positive sciences: one which flowered in the Neolithic period and whose theory of the sensible order provided the basis of the arts of civilisation (agriculture, animal husbandry, pottery, weaving, conservation, construction and preparation of food etc.) and the which continues to provide for our basic needs today by these means; and the other which places itself from the start at the level of intelligibility and abstract thought, and of which contemporary science is the fruit.*

> *We have had to wait till the middle of the 20th century for the crossing of these long separated paths: that which arrives at the physical world by the detour of theory, and that which we have recently come to know arrives at theory by a detour of the physical. The entire process of human knowledge thus assumes the character of a closed yet reciprocal system. And we therefore remain faithful to the inspiration of the savage mind with he recognises that, by an encounter the savage mind could have foreseen, that is the scientific spirit n it s most modern form will have contributed to legitimise the principles of savage thought and will ultimately seek to re-establish savage thought in its rightful place.*

> *Reason develops and transforms itself in the practical field. Mans mode of thought needs to reflect his relations to the world and to men.*
> Levi-Strauss (1966:269)

Methinks think there is something in what Levi-Strauss says, though I also think he overdraws the distinction, possibly to make the point about two primary modes of human mentation. I consider this distinction to be valid though not mutually exclusive. My view is that each of us works with both direct sensory experience and the abstract. Furthermore I think this has been true for as long as there has been language. Language obliges us to abstract from experience. Each 'chair' (or whatever) is unique. To label it 'chair' requires us to abstract from the direct experience. Kolb's experiential learning cycle has a component 'abstract conceptualisation'. Yet it is true of science that abstract thought is often more valued and practical considerations.

This of course is the retroductive - inductive ↔ deductive cycle - thinking, discussed elsewhere in this e-book. Indeed the Kolb (1984) experiential learning cycle may be see in this sense to blend savage and domesticated thinking.

In relation to the savage mind approach and its 'fit' with experiential or even action learning approach i.e. wild thought cp. domesticated thought. Experiential learning does generally operate from, and certainly with, experience i.e. sensory experience embedded in the lived life. Further experiential learning sometimes operates tacitly, with little or no conscious awareness. I don't think it always does. So this introduces another dimension that of explicit/tacit knowledge.

Heterotechnic and Symmetrotechnic forms of co-operation through the face to face task group from the perspective of Humans, and Apes with an aside to some implications for ACE & CED

The two forms of Co-operation: some androgogic and pedagogic implications

Anthropologically we need to move the conception of tool making seen as the product of a lone worker (which is applicable to apes) who is basic 'h/jack of all trades and master of none' with each doing their own 'ape' thing. Reynolds (1993:410-14). This needs to move to a concept more reminiscent of actual hominid activities both yesterday and today, that of heterotechnic co-operation (HTC)*[10] (different crafts undertaken at artisan level by different individuals simultaneously co-evolving a group tool/product e.g. manufacturing a canoe or hut or bow and arrow), and generally accomplished in a Heterotechnic Face To Face Task Group (HTF2FTG). I argue strongly that this is the original conception for me behind androgogy i.e. Adult and Community Education (ACE) and is in a sense a form of community artificing which, for children could be called simply 'play', whereas symmetrotechnic co-operation of the compulsory type has been used by pedagogy i.e. all children in a given class sitting at identical tables with identical books doing identical curriculum material. This may be compared to the conventional conceptualisation of co-operation which Reynonld's calls symmetrotechnic/symmetric co-operation (STC) (all participants do the same thing at the same time in order to facilitate a common goal e.g. tug of war, typical school class/pedagogy).

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10 Several dimensions of HTC can be identified such as: (1) degree of agentic volition – is the participation at the discretion of the agent viz. a vi a victim at a cannibal HTC could be described as being able to express a low degree of agentic volition; (2) formal or informal – not that these are mutually exclusive rather that levels of structuralism and formality vary for instance compare the spontaneous manufacture by a group of a canoe V's a school working bee V's a council rubbish pick up.

Indeed HTF2FTG and the construction of polylith's[11] are empirically associated as they invariably occur together in humans but neither occur in apes, whereas apes do manufacture polypod's. [3],[12] And the construction of polyliths depends on social organisation i.e. the social holon within which tool manufacture and use is occurring. In short HTC requires the integration of individual minds into a larger co-operative framework or entity with synergistic co-operative interfaces between the various disparate skills brought into 'play' in the construction/manufacturing process. So early human manufacturing may well be about more than the '3C's' of Climate, Calories and Competition and rather be about Mutual Aid, Co-operation and Play – MCP. Reynolds (1993:422, 423-426).

Basic Principles of an archaic tool use/object manipulation/manufacturing system

Basic principles of a manufacturing system:
1. **Social context/holon** (a. gendered roles, b. intergenerational participation, Social/community focus (not private profit) - yet complementary with in the context of the HTF2FTG model, c. social intent)
2. **Hetrotechnic Face to Face Task Grouping** (HTF2FTG) – a social structure that may be defined by *'the shared intention to transform matter and energy through the co-operative and complementary use of tools and tool-using skills by a group of people in face to face contact'* 412
3. **Grouping of HTG's co-ordinated with one another**: logistically, operationally, economically and socially 416
4. **Task design** – often from pre-existing artefact
5. **Task intent** – manufacturing and use
6. **Process of Resource acquirance**
7. **Task specialisation yet informal interface**
8. **Role Complementarity** – necessary for HTG
9. **Shared Collective Goals**
10. **Logical sequencing of operations**
11. **Development of stable and satisfactory polylith* interface joints**
12. **Assembly and testing of separately manufactured parts**
13. **Exchange dynamics** integrated with reciprocal, complementary and co-operative roles of the HTF2FTG, the broader social and exchange systems, and the interaction between
14. **Social exchange system** – by which resources &products are moved from one group to another – tribal economy – Community Economic Development

Source: Drawn from Reynolds (1993:412, 417, 423)

The emergence and importance of Social Intelligence and learning in early hominids

The procurement of subsistence/food etc for our ancestors would not have been a particularly difficult issue given the low level of competition, comparatively minute populations and the high level of available stock as well as the lessons leant from their

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11 Polylith's are constructions that can be rotated on their axis and their coherence is independent of gravity e.g. a table, whereas polypod's are stacked constructions and rely on gravity for their coherence e.g. a stack of plates, pyramid.

12 The social dimension inc. organisation and level and type of co-operation of manufacture cannot be seen from the ancient tool itself and is almost always written out of the picture completely or at best treated by anthropologists as secondary or derivative but for Reynold's it is central. This is achieved by focusing on the physical tool itself as the end product a form of misplaced concreteness, postulating its manufacture by the lone jack/hack of all trades, and considering social issues as at best derivative

ancestors. What was the challenge according to Ingold was that given the long gestation period and childhood and the overlap of generations the potential for intra-group conflict was great cp. the need to maintain community solidarity. Ingold (1993a:430)As now we don't just have to worry about our actions vis a vis game but also social linkages and implications for the group. Thus social skills become a crucial social and individual survival factor for the group. So what was important and Ingold argues the emergent survival stress was not technical, hunting or subsistence skills rather it was the social skills that carried the day. And these had to be learnt. This is the argument for early hominids evidencing **'social intelligence' based on 'learning'.**

The cognitive theory of intelligence and Reflexive Praxis as social learning

The cognitive theory of intelligence posits that there is a distinction (sharp!) between intelligence and behaviour. Ingold (1993a:431), and that the intellect (as a property of mind) and behaviour (as mere bodily execution). This distinction, along with the idea that all purposive or intentional action/behaviour thus has to be preceded by an intellectual act of cognition, necessitates the construction of representations, the consideration of alternatives, and the formulation of plans. Ingold, vigorously here and elsewhere in his book, disputes this as cognitive elitism.

One great strength we bring to bear in this regard is to turn our thinking inward and reflect on our past experience and to construe future possibilities. This is for Ingold the power of imagination for me the power of reflexivity. [for me it is the power of Reflection indeed since it is then applied to ones praxis, [Ingold (1993a:431-3)] is using the term **imagination** here as **Reflexive Praxis** or for Ingold social **learning**] In this context planning is not about thinking as in a separate cognitive activity but rather through making – thinking by doing – doing with thinking. Here thinking becomes a product of action. Automatic action plans that we call up to give us the right behaviour in a certain circumstance is just so much bollocks – the world is too complex for any set piece behaviour response to be universally a survival advantage. Action issues from an agent not a plan and agents are profoundly more than behavioural automatons or mere 'operatives'. Now intelligence is immanent in the action itself not the plan and is logically to a certain extent bestowed (or betrayed) by the agent.

Speech and tool making are not only ways of acting in the world, they are also ways of getting to experience and thus know and understand it. Here tools like words can be used to mediate or lens a two-way engagement with the word. Meaning now becomes an emergent property from engagement not from a pedagogical lexicon/dictionary, which in turn is based on the immersion of the agent in the social and physical relations of his or her environment. Ingold (1993a:432-433)

The Ghost in the 'M'achine is now 'm'an – Stations of the Cross of the transformation
Historically speaking

Since the western separation of thinking and doing originating some 400BC which remained somewhat incipient until the Industrial Revolution of 1750-1850 and codified by the separation of social and technical initiated by Marx in the mid 1880's, particularly in relation to his epochal view of economic and production activities as technical and as such categorically separate to social, and more recently aided by humanity's penchant for high tech warfare. Further particular since the advent of the computer and so called 'intelligent' machines and robots of the 1980's and the present day computer and its now ubiquitous application

Techne writ large as 'hoshin kanri' - strategy deployment

The concept of techne can be broadened to the organisational concept of 'strategy deployment' or 'organisational techne'. Called 'hoshin kanri' in Japanese the approach can best be seen as distilled into a 'leader's guide' which, is a cross between a workbook and a novel in order to illustrate a more effective method for planning and execution through participation and narrative. The approach also reveals, in the narrative, the thought process behind effective planning and execution not just describing the techniques or procedures. Such a 'meta-techne' approach can be used for instance in automation where everyone in the organization becomes a scientist participating in continual experiments with strategy deployment from each plan.

The 10 Stations of the transformation

In this process the workman becomes a mere operator putting into effect a set of predetermined planned mechanical steps and principles that are (a) already immanent in the tools (wherein skill is nowadays considered to lie) and (b) required to complete the task at hand – a little like the Ikea version of skills. Thus the overall project becomes entirely indifferent to the workers own subjective aptitudes and ultimately productive work is divorced from human agency and assigned to the functioning of a device – the **mechanical** operations have won and the worker has been assigned a value not substantially different to a machine. Indeed some may argue, and to an extent the author is among them, that the worker 'qua human has been introjected into the machine. Ingold (1993a:434).

Consequently from ancient times indeed from what we often think of as the basis of western civilisation – the ancient Greek states particularly in the Socratic/Aristotelian stream (circa. 400BC), thinking becomes separated from doing **(Station 1)** with the latter essentially reserved for slaves or citizens when in the military, ones real calling is to contemplate the good live on the rim of heaven. Unlike the Epicurean school (circa. 300BC) especially the Stoics who argued that active practical reasoning is something of intrinsic worth and dignity, something essential to ones humanity. Nussbaum (1994:321). Technical is then separated from Social **(Station 2)** and in an Epicurean sense from our humanity as it is crucial for the social manifestation of 'active practical reasoning' to help the needy, which is what philosophy is all about- being of practical help to ordinary folk in our everyday lives.

Subsequently in a Marxian sense the factors of production, separated labour from social and included it with land, capital and raw materials. Thus labour is conceptualised as separate from, and not a part of, the social system, while more recently this separation has been broadened and deepened through ongoing planning associated with technology development such as: 'the smart house', civic infrastructure e.g. town even social planning, politics based exclusively on focus group populism and elsewhere in society. **Marx, like Locke and other classical liberals, regarded the nonhuman world as no more than the ground of human activity, acquiring value if and when it became transformed by human labour or its extension—technology - rather than seeing the nonhuman world as the harbour even crucible for human activity through the joining consubstantially therewith through its extension techneology**. Further the eco-socialist left continues, and the eco- right refuse to accept, calls for controlling population growth, ending economic growth and development, and transforming the modern world. Both these 'wings' and indeed post modernism as a collective and ultimately Wilber himself argue in effect that because humanity lives in two worlds, the natural world or ecosphere and a social world of its own creation—the technosphere [Nature/Culture] - the environmental crisis is not an ecological problem but a social and political problem. Consequently in the separation of social planing from the means of production, ultimately it is the instrumental qua. technical which gains ascendency **(Station 3)**.

And technique now becomes 'given' in the operational instructions of the machines themselves quite independent of the experience or skills or wisdom or community of their users and thus agency is appropriated by the tool i.e. the machine whereby technique is now seen to lie outside the user/operator and embedded in the tools operating instructions. Thus technique and human agency becomes seen as irrelevant to the machines operation and thus irrelevant to the project at hand. Thus agency and skill become appropriated by the technical qua. machine **(Station 4a)** which, now has gobbled up these human dimensions of its operator now in a bizarre twist of fate man himself becomes the ghost in the machine **(Station 4b).**

Furthermore there is for Ingold (1993a:431-435) a presumption that all purposive and intentional action is preceded by an intellectual act of cognition involving the construction of plans as representations of objective mechanical activities required, consideration of alternatives and formulation of final action plans. And the machine has become the plan **(Station 5).** Even more concerning is that intellect is now commodified into the policy dimension of planning and tool design and dichotomously separated from execution or implementation which has become mere bodily execution. So the plan becomes one of algorithms for in effect a 'doing machine' to implement. **(Station 6). [this is the essential tenet of the movie - The Matrix]**

Thinking has been separated from doing and the machine has appropriated the former, always having the latter. So the plan for the 'doing machine' has consumed human thinking and skills which have themselves become part of the plan's component *algorithms of operation* rather than *heuristics of skill* encompassing the plan itself **(Station 7).** Thus Man has become mere adjunct to the machine. And man is now the extension of the machine and not vice versa. So the skilled manipulation of tools has given way to the operation of mechanically determined operations of technology. Thus technology is elevated from the practical to the discursive (intelligence) and skills are de-elevated from creative doing to mere operational execution (behaviour).

Such has been the ascendency of this argument that in vocational education today skill has become synonymous with 'behaviour' and as such an *algorithms of operation* or 'competencies' are measured as '*collectivisable units of skilled behaviour*' rather than '*individually held constellations of technes of understanding*' **(Station 8).** For instance in Vocational Education terms, in the former algorithmic pedagogy, making a cocktail has been deconstructed into an algorithm with some 14 such generic behaviours or 'competencies'.

Thus the artisan has become the masters apprentice, and the master is the machine as a distillation of a particular cognitivist/Logocentricist/Cephalocentrist/Scriptist style of human thinking **(Station 9)** – the one who plugs in the tools and switches on the magic show. And today in the space between the two i.e. between discursive knowledge and executive practice no space remains for the practical knowledge of the craftsman indeed little or no space remains for the human to human socially based reification of practical knowledge itself **(Station 10).** So ultimately we see that in technology there seems to be an innate desire to transform the *human based heuristics of technique* into *machine based algorithms of operations and behaviour* **(Stations 1-10).**

The Transformation from techne to technology

Table 11: The Transformation from techne to technology

From techne and artifice	To technology and technical
Personal	Impersonal
Formal	Informal
Centre	Periphery
Practical	Discursive
Techne	Society as discrete to technology
Mechanics	Semiotics 437
Individual	Social 438
Complexification	Objectification
Innate - Prosumerism	Commodification
Subjective	Objective
Heuristics of technique	Algorithms of operations pg434
Gesturally based Orality	Textuality – Ong (1982) qtd pg436
Social action starts with Production	SA starts with Distribution 438 therefore CED impossible & social work triumphs
Doing with thinking as in making as in praxis	Thinking as in intelligence as discrete from operations behaviour
Skill	Technology (withdrawal of the personal from production 439)
Social relations	Technical relations
Communicative behaviour	Technical behaviour 439 which is one aspect of technology
The Technical as one aspect of the social	The Social as a form of the Technical 438
The Economic as one aspect of the Social	The Social as one aspect of the Economic which is one part of the Technical
Production as the constitution of persons in community	Production as the manufacture of products for the economy 439
Tool based socialisation	Technology based commodification 441
Co-operation with Immanent Nature	Control over externalised and commodified nature by prog mgt 441
The tool as a link in the chain of personal causation and interaction with the 'universe'	The tool as a link in the chain of mechanical and technological causation which is essentially external to man 440
Nature encapsulates technique, tool, man and the Social – humanity in dialogue with 'N'ature and in search of mutualation with, 'N'ature	Nature becomes nature part of the nexus of Social relations part of the Social 442 – humanity in contestation with, and in search for manipulation of, 'n'ature
Re-Engagement of 'm'an in 'N'ature via artificeology	Disengagement of 'M'an from 'n'ature via. Technology 443
Knowing through thinking and doing	Knowing as thinking and doing as behaviour

Source: P Wildman 07-2006. Based on Ingold (1993a: 436-439) and other sources.

The broad social implications of the transformations

For the skilled operator acting in the world and reflecting thereon is a key way of knowing it. Thus skill or techne is at once a form of knowledge and also a form of practice of it that is an epistem and an ontology. Thus the tool can serve to link the artisan to the great chain of being and thus transform what it is to be human i.e. the tool can have ontological implications.

442Often the heuristics of the artificer are tacit even visceral and represent the workers way of being in the world through the use of manual dexterity in the application of perceptual knowledge 443, as lensing the world as it were. Even more so the penchant and proclivities and unique skills of people are also key ways of knowing them i.e. of sociability. Crucially historically (social) production has reified the relationship between technology and kinship.

This split has allowed globalisation to be triumphant economically yet almost invisible socially as far as improvements in the standard of living are concerned. So that the objectives of techne based production is transformed from the constitution of persons in community to the technological manufacture of things for the economy. Ingold (1993a:435- 439)

This separation of thinking and doing and the absorption of planning into thinking and enactment into doing, the absorption of technique by technology, of skill by the machine

and the commodification of relationships impoverishes us socially as well as economically. Furthermore the split has led to the progressive disengagement of humanity from nature both in the design of its cities and in the operations of its economy, and led to the search for ways to manipulate and manage and plan both. 443. How humans act in the world in effect constitutes or 'languages' in post modern terms, that world in no small part. So that in morphing techne into technology we constitute a world where the latter is discrete not an aid to humanity ultimately we may posit the probability of the process of constitution becoming one of consumption so that our technologically constituted world may well ultimately consume its constitutor – us – or worse our children's children.

Intriguingly the tool, the gift and the word can all mediate an active, purposive and meaningful engagement between person and their environments or the obverse the separate on of the person from her world.

This commodification now extends to nature with nature achieving the status of technology i.e. external to man and thus now manageable and 'plannable'. This is possibly the ultimate end of the change initiated by the transition from technique to technology, a transition based commodification 441. We commodify Nature amenable to human technique to nature amenable to mechanical technology. Ingold (1993a:440-441).

Shards

The concept of shards works well in relation to the idea of the Artificer concept now being in shards as parts of a broken glass even as embers of a fire struggling to glow independently and each going out one at a time. Recovery of these shards first needs a pattern recognition language such as the artificer to give us the lens with which to see these embers/pieces of the glass. Now that we have identified the fragments we can commence to put them back together. In this sense Artificer Learning may be seen as 'back to the future'. Nevertheless the challenge for today is to recognise that the Artificer Learning concept has within it a dynamic that denies the authenticity of a purely archaeological approach by putting them back in their original form. Rather the new form like that of the original will need to suit the needs of the times. And the artificer is made anew.

The Ghost in the Machine now becomes Society itself

Indeed society is conceptualised, as was actually said a decade ago by the then Australian Prime Minister Paul Keating, as a giant machine and social policy is about the technology of *getting the levers to the right settings*. Instead they almost exclusively focus on applying the processes of hard science to the social arena, and this means ignoring things like governance, ethics, citizen participation and deliberation, alternative systems of democracy, peace and so forth. This has the effect even moreso of leaving the social dimension qua. techne out of the picture and replacing it with the social dimension qua. technology, again replacing social heuristics of civic duty with technological algorithms of rules, regulations and surveillance.

Indeed some 30 years ago I argued that the ghost in the machine was in fact that of our scientific rationality *separating from any radical as in profound dependence on nature*. Today I would cast this as *separating from any essential dependence on the physiosphere*. Basically I posited that conservationists and environmentalists by opposing (i.e. seeking clean air, clear streams, highway construction controls etc) are really opposing fundamental rationality inherent in our technologised society. Wildman (1976).

This has two meanings - a society which is technologised and a technology which has consumed society. Science based on the 'as if ' principle claims to be value neutral and as such cant pronounce itself 'good'. Thus the ghost in the machine is the 'ghost of our

scientific rationality'. Furthermore unless these conservationists and environmentalists can posit an alternative underlying rationality the 'ghost' will continue to haunt us.

And it has.

An alternative - technelogy a life affirming technology - transforming the ghost in the machine to the artifice in ingenuity

This e-book seeks to posit another 'road less travelled' approach where social deliberations and ethics shape a technology cp. vice versa. Interactivity is endorsed however the ultimate ends of technology in this sense, unlike the Marxian approach, are (1) not the prima mobile of social change rather the reverse, and (2) as a 'drover' of social change - technology is life affirming rather than life controlling. Here the focus of technology, in this instance technology, moves from 'the ghost in the machine' where we are/humanity is the ghost, to 'the artifice in ingenuity' where the life affirming technology supports human endeavours. Cavallo, D. (2000).

Defining and Applying Mimesis

Imitation is not copying. Imitation or mimesis is imitating with understanding. Mimesis is only undertaken by hominids not by monkeys and only to a very limited extent by the primates in particular the great apes. Elisabetta, Visalberghi (1993)

Mimesis or imitation may be defined as *the ability to understand, intelligently grasp and apply what the action of the other means from the perspective of self*. Visalberghi (1993:144) [13]

Mimesis includes the ability to:
1. Visualise rather than rationalise interlinked sequences – vocalisation seems less important
2. Analyse behaviour sequences backwards – **reverse causation** – where it is necessary to be able to infer the cause from the result/effect – *a posteriori* (effect to cause or action to theory - induction) cp *a priori* reasoning (cause to effect or theory to action - deduction) Visalberghi (1993:146)
3. Undertake **second order imitation** inc. the generation of meta-representational fields
4. Undertake **third order imitation** whereby the tasks to be imitated are not just copied (first order imitation) rather they are subject to (second order copying) meta-representation whereby the tasks to be imitated are generalised by the copier to a generic meta-representational level then applied (in third order imitating) at an application level from the imitators point of view Visalberghi (1993:145)
5. Progress in the psycho-motor development domain for instance as per Dave (1975) through the stages of (1) simple imitation, (2) manipulation, (3) precision/dexterity, (4) articulation to understanding and general and other

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[13] On the **distinction between mimesis and memesis**. Mimetic theory leads to insights on how humans behave through the concept of copying with understanding, a concept, this book argues, vital Artificer Learning and by derivation Vocational Education. Memesis on the other hand leads to insights on how humans think and communicate, through the generation, transmission and enactment of memes viz. a cultural unit (an idea or value or pattern of behaviour) that is passed from one generation to another by non-genetic means (as by stories or adaptation); 'memes are the cultural counterpart of genes', including how they summarize a lot of seemingly unrelated information into a new synthesis. Both are very important for the future of humanity. NB: mimesis comes from 'mime' and memeis comes from 'meme'.

specialised skill sets, some authors argue this is the arena of mimesis or third order imitation, (5) naturalisation [14].

Poiesis, Mimesis, Digesis and the Artificer Poet

Aristotle took the view that **human beings are mimetic beings**, feeling an urge to understand reality through the use poiesis as a sort of 'action as theory creation' to internally model reality and to explicate this in the creation of texts, art, poetry and actions that reflect on, represent, and seek to change that reality. Mimesis then is a method of understanding the mysterium we find ourselves in each time we contemplate 'us' and look at the sky. *Poïesis* means 'to make' in ancient Greek. (creation, from *poiein*, to make) This word, the root of our modern word 'poetry' was first a verb, then a noun, describing an action that transforms and continues the world, and a representation of same respectively. Neither technical production nor creation in the romantic sense, *poïetic* **work reconciles thought with matter and time, and man with the world.** In this sense poetry and acting are forms of mimesis. Here we see the artificer as a poet using physical materials rather than words to create a poem as exemplar project.

Mimesis cp. Digesis ≡ Learning cp. Teaching

It was also Plato and Aristotle who contrasted mimesis with diegesis. In *diegesis* it is not the form in which a work of art represents reality but that in which the author is the speaker who is describing how it represents reality to the audience. It is in diegesis that the author addresses the audience or the readership directly as a narrator to express her freely creative act of the imagination, of fantasies and dreams in contrast to mimesis where the reader is left to understand and interpret the piece themselves. Diegesis was thought of as *telling*: the author narrating action indirectly and describing what is in the characters' minds and emotions, while mimesis is seen in terms of *showing* what is going on in the characters' inner thoughts and emotions through their external actions and their acting.

Digesis (Greek διήγησις) has been contrasted since Plato's and Aristotle's times with mimesis, the form that is *telling* rather than *showing respectively,* the thoughts or the inner processes of characters, by external action and acting. Diegesis, is where the author (or artificer) as *narrator* speaks from above in the form of commenting on the explication of the actions as in exemplar project.

Diegesis may concern elements, such as characters, events and things within the main or *primary* narrative. However, the author may include elements which are not intended for the primary narrative, such as stories within stories; characters and events that may be referred to elsewhere or in historical contexts and that are therefore outside the main story and are thus presented in an *extradiegetic* situation.

To gain an overall understanding both are necessary - mimesis as in self discovery and digesis as in anchors/artificers explanations similar again to learning and teaching.

Bush Mechanics Formative Principles

It is likely that recognisably human tool behaviour preceded language behaviour in human evolution, by up to a million years, and its acquisition is biologically and sociologically, discrete from the latter, and involves several capacities:
  1. **Long term memory** – both in terms of prioritisation of, and planning for, task

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[14] See http://www.learningandteaching.info/learning/bloomtax.htm#Cognitive: for a pictorial list of the various learning taxonomies in the cognitive; affective; and psycho-motor fields

2. **Contingency planning** – where in thought simulations are run until failure occurs and then redesign or alternative scenarios (prepared ahead of time) are invoked inc. Piaget's reversibility and also trial and error. Reversibility is the ablty to perform the action in thought, to imagine the coming failure, and to return to the starting point *in thought*, before actually committing the error Wynn (1993:400).
3. **Problem solving**

BM Generative Principle 1: Humans hard wired to manipulate objects

Humans are hard wired (have a predisposition) to manipulate objects, and such manipulation can then, but not necessarily, progress to tool use. Further such manipulation and potentially associated tool usage when linked to an expanding brain capacity introduced the potential for mimesis – prehistoric techne or skill transfer. Language is a much later development (a million or so years later) development, than tool use and is also associated with a different though contiguous neural location. Wynn (1993:402). NB: object manipulation does not mean one has the skill to make or use tools rather it is a prerequisite therefore.

BM Generative Principle 2: Language (auditory), and tool making (visual), are cognitively discrete, evolutionarily separate and genderised

Tool based behaviour employs cognitive organisation (and hard wired neural circuitry) that develop along lines separate from those required for language (and which appear to be more generally available within the human species and associated primates than languaging behaviour) Wynn (1993:404). It is possible that infants use the kinds of thinking for object manipulation and early speech to about age 3 and thereafter the two kinds of thinking diverge as the brain sections used respectively differentiate, yet remain contiguous.

Human hard wiring to manipulate objects predominates in the right brain visuo-spatial areas (male preference) and further predates by thousands of millennia any similar wiring for language. Wynn (1993:402), McGrew (1993:167), which emerged through the left brain and is a strength of females. The latter is a moot issue Chomsky argues there is such a centre however Wynn argues otherwise although he does allow for an in part' arrangement whereby language ability is part (?%) innate and part environmental. Wynn (1993:404) [C actually argues for an innate grammar ability and Bruner (1985) for an innate LAD – Language Acquisition Device.

Is there a gender based Artificer differential?

Is there a gender difference in relation to articulating an 'artificer urge'? And where does the Artificer fit in? Yes and No. Yes in that a male energy may well generate an external exemplar project which remains externally focused whereas a female energy may well generate an exemplar project which focuses on linking, network and relationship. And No in the sense that it is argued that the species has what one may call an inherent '*will to artifice*', and although this will or urge may manifest in somewhat manner in respect of gender nonetheless the urge still needs and seeks expression albeit in a more inclusive, supportive and non hierarchical manner.

Hypothesis: to the extent that humans, as a species, are hard wired for object manipulation and its associated tool use, is the extent that (a) learning such is important to being human and (b) learning tool use could well concentrate on non languaging processes i.e. approaches other than the conventional ones of learn abstract theory first then its manipulative behaviour based applications. Thus forms of mimesis (with understanding)

may well prove crucial to vocational education and beyond, may be seen as a form of inborn 'urge or will to artifice'.

BM Generative Principle 3: Bricolage

Bricolage is defined by Ingold (1993b:340) in his paper 'Tools Techniques and Technology', as the process whereby old pieces of equipment form the basis for the construction of new pieces of equipment, thus fulfilling quite different functions in successive operations of the kind that Levi-Strauss (1966) classically called bricolage (French for tinkerer).

BM Generative Principle 4: Mimesis

Imitation is not copying, and it is not blindly following instruction. Imitation or mimesis is imitating with understanding from the perspective of the imitatee. Further mimesis is only undertaken by hominids not by monkeys and only to a very limited extent by the primates in particular the great apes. So **monkey see monkey do is a rurban myth** – even **ape see ape do as in aping** is highly unlikely. Visalberghi (1993:144) and apes do not copy as in mimic they can follow as individuals in a rough sense but not mimic. Mimesis is not rote chaining of sub routines.

Clearly mimesis can and usually does use bricolage. Mimesis or imitation may be defined as *the ability to understand and intelligently grasp what the action of the other means from the perspective of self*. Visalberghi (1993:144)

Mimesis (generating one from one), which is significantly different to copying (unquestioning copying of like to like) or instruction (one way direction of one on one), and includes the ability to:

1. **Visualise rather than rationalise interlinked sequences** – vocalisation seems less important
2. Analyse behaviour sequences backwards – **reverse causation** Visalberghi (1993:146) – where the logical reasoning capacity to be able to infer the cause from the result
3. Ability to copy physical motions of another – **first order imitation**
4. Undertake **second order imitation** inc. the generation of meta-representational fields, whereby the tasks to be imitated are generalised by the copier to a generic meta representational level then 'understood' in terms of this abstract representation – do it 'like' this – do it 'so that' it looks like such and such
5. Undertake **third order imitation** whereby the tasks to be imitated are not just copied (first order imitation) rather they are subject to (second order copying) meta-representation whereby the tasks to be imitated are generalised by the copier to a generic mr level then understood then applied (in third order imitating) at an application level now from the imitator's point of view. Visalberghi (1993:145)

Embedding Mimesis to the Gestural-Mimetic-Depictive (GMD) Model of social learning

6. Such Mimesis to be embedded in a broader process of social learning which incorporates instruction for tool making and tool using – the Davison and Noble's so-called 'gestural-mimetic-depictive model' (GMD Model) – 'come here – do what I do – now watch me do it' – makes sense Davison & Noble (1993:383)

Dexterity: Some attributes of manual and mental dexterity

- **Hands are levers of influence on the world that make intelligence worth having'** Pinker (1997:11).
- He continues – **Precision hands and precision intelligence coevolved in the human lineage, and the fossil record shows that hands led the way** [Quoted in Wilson (1998:326)]
- Also consider please: Gregory of Nyssa, a church father, died in 396AD, maintained that '**if the body had no hands, how then would the articulate voice be formed in it?** Hewes (1993:22)

Society as cephalocentric - accessing the overlooked mimetic epistemology of dexterity

What this means for today's humans - some 200,000 years after the transition from Homo erectus to Homo sapiens - is that our learning abilities and creativity are still very deeply connected to our manual capacities. The two are linked by dexterity. In cultures such as ours that dichotomize 'mind' and 'body' and hold to what Wilson (1998:60) calls a 'cephalocentric view of intelligence,' whereby the importance of the hand-brain nexus is easily forgotten and the role of dexterity is ignored.

As a result, we overvalue symbolic knowledge (the ability to manipulate words and numbers to describe or represent meaning in abstract theoretical linguistic symbols) while undervaluing 'bodily knowledge' or 'hand knowledge', what Wilson (1998:48) calls mimetic knowledge. He goes on to differentiate severely copying from imitation because mimesis – the latter - includes elements of intentionality and understanding and capability generally manifest through dexterity i.e. learning or as we would call it here 'futuring'.

Mimetics then are acts that embody a theory of knowledge, an epistemology, that manifests in intentional, representational and concrete acts (e.g. making a stone axe 1,000,000 years ago or an exemplar project today as discussed in this article) that are not mythic (symbolic narrative) or theoretic (abstract calculus) but mimetic. Thus they are not just copying as in monkey see monkey do, but replicating with understanding including intentionality leading to the capability to manipulate the elements of our physical environment to create meaningful actions and objects in our lives. For Wilson (1998:49) this mimesis involves the invention of intentional socially encoded representations and their articulation into communal reality.

In schools, Wilson writes, children 'who are most successful, even virtuosos, at using their hands to understand, build and fix complicated things in the everyday world around them' are often the same children doing very poorly on mathematically related intelligence tests. Furthermore one can see this respect for the mimetic epistemology behind the theories of education of Dewey, Steiner and others and also in the much of the intent of the vocational education systems. According to Wilson then such systems are not as they are seen nowadays as secondary for students who cant 'cut it' in academia, they are actually discrete and equal to the symbolic systems now so dominant in our educational arena.

Wilson's book can be rough going at times, but I highly recommend it to those of us who feel that our hands are quite literally the smartest things we own, further he maintains that the hand speaks to the brain just as surely as the brain speaks to the hand. This can be seen in any discussion where people who have to put their hands behind their back simply can't communicate properly. From Wilson's perspective gesticulation is part of the mimetic epistem based on dexterity. Certainly smarter than the stubborn Western brain that chooses

to risk either ignoring or overworking them, seldom choosing to dance with or respect them.

Specialisation, Externalisation & the Debasement of Dexterity & Skilled Craftsmanship

Over the past three hundred years that is in fairly modern times two skill related separations occur (1) specialisation - the artist comes to be distinguished from the artisan, and the architect from the builder, and (2) externalisation - skill becomes externalised as does knowledge and indeed nature. In the past, practitioners were known, above all, for their skill and craftsmanship. Here we will show how the essence of skill lies not in the ability to execute certain fixed motor programmes, but in the continual attunement of movement to the ever-changing conditions of the task as it unfolds. That is, skill depends on a precise co-ordination of perception and action.

Skill is thus emergent, a workmanship of risk rather than certainty of the above attunement of inner capabilities and outer efficacies. The application of skill requires dexterity which in a broad sense is about the attunement of movements and the application of tools to an emergent task i.e. risk rather than certainty. Yet skill is also thoughtful, and in this sense skill must be distinguished from mere habit and behaviour. Skill is almost everywhere contextual such as in tool-making (means) or pottery (ends), in all instances skills place demands on practitioners in terms of timing, forethought and responsiveness, as well as considerations of how they can be reproduced across generations, and how they are enchained with other skills of everyday life. This e-book maintains that it is this dual process of specialisation and externalisation that has led to the contemporary debasement of skilled craftsmanship especially relative to architecture and the fine arts.

Brief overview of some of the key requirements of dexterity

A. Dexterity requires an ontological trifecta

An alternative focus for education that recognises the importance of tool making and its associated hand-eye dexterity as well as its prior evolutionary emergence to language would be to develop educational systems that, rather than focusing on the trinity of *objective technology, abstract language,* and *linguistic intelligence,* seek to explore the linkages between *craftsmanship, song and imagination intelligence*, what may be seen as respectively as a differentiation between modern and pre-modern sensibilities. Ingold (1993:451) in his paper on 'Epilogue: Technology, language, intelligence: a reconsideration of basic concepts', uses the term imagination to refer to reflexivity or what I may call reflexive praxis, what Ingold also calls social learning. Indeed it may be argued that there is an integrative relationship between manual and mental forms of dexterity and indeed a causative relationship especially from the manual to mental path.

B. Recognise 'hand knowledge' as distinct yet equivalent to 'school knowledge'

Some authors argue that 'hand knowledge' and 'school knowledge' represent a long overlooked form of 'in the body knowledge' cp. 'formal textual linguistic knowledge', in fact a different way of knowing or epistem. Wilson (1998:283), these 'ways of knowing are illustrated in the following table in the footnote.

Table 12: Table B1 - Comparison of Four Ways of Knowing
Table 13: Table 10 extended - Comparison of an additional Four Ways of Knowing
Table B1 extended [15]

[15] Here for instance we have two of several 'knowledges' for instance - head knowledge (conceptual), hand knowledge (practical), heart knowledge (Gnostic). Since the Renaissance the former has usurped all others. It is the contention of this book that Artificer knowledge - making knowledge (a combination of techne and praxis). Wildman and Inayatullah (1996: Table B1). This table draws from the Aristotelian categorisation.

Table 11: Comparison of Four Ways of Knowing
This table examines some twelve learning issues across five ways of learning.

WAYS of KNOWING	TECHNE (1)	SCIENTIA (2)	PRAXIS (3)	GNOSIS (4)
Learning Type	Learning by Doing	Learning for Knowing	Learning for Being	Learning for Seeing
Idea⇒Design⇒Implement	Implement (thus idea & design are extant)	Idea/concept (hypoth) ⇒ Design ⇒ revert	Idea ⇒ Implement & ⇒ revert	Idea
Focus	External technical reality	External objective reality	External/internal being?	Internal (self)
Knowledge Produced	Practical	Propositional	Experiential	Metaphorical
Key Method of Expression	Skill	Theory	Depth Experience	Insight/worship
Structure	Crafts	Subject Disciplines	Issues	Stories
Teacher's Role	Master	Expert	Facilitator	Storyteller
Learning Strategies	Practical Demonstrations	Lectures on Theory	Real world Projects	Walkabouts/Experience
Research Style	Applied (Developmental)	Basic (Experimental)	Action (Participative)	Comparative(Reflective)
Role of Researcher	Producer of Solutions	Producer of Knowledge	Co-creator of Improvements	Immersed in Stories/Feelings
Research Goal	Workplace Solutions	Abstract Knowledge	Local Theory & Action for Change	Heart/Insight
Basic Philosophy	Utilitarianism	Positivism	Constructivism	Esotericism
Focus of Reflection	What can I now DO?	What do I now KNOW?	Who am I BECOMING?	Who am I NOW?
Occupation	Technician	Scientist	Pracademic	Sage
Mindscape	Hierarchical	Hierarchical	Individualist	Synergistic
Casual Layered Analysis	Social Causes	Litany	Cosmology	Metaphor/Myth
Paradigm	Intervention	Naming	Existence	Worldview (nous)
Festival of:	Skills	Ideas	Projects	Esoteric

Source: Wildman and Inayatullah, 1996: Table B1. **Please Note:** These categories are indicative only and are not mutually exclusive. Scientia and Theoria are linked as are Praxis and Practike.

Table 12: Table 11 extended: An additional Four Ways of Knowing
This table examines some twelve learning issues across five ways of learning.

WAYS of KNOWING	RELATIO (5)	CRITICS (6)	POETICS (7) *	POIESIS (6)
Learning Type	Learning for Relating	L for critique	L for word art	Learning from Making
Idea⇒Design⇒Implement	Hologram inc. I | D | I though largely undifferentiated			Implementation ⇒ Idea ⇒ Design ⇒ Shaping/ Implementation ⇒ revert
Focus	Self and others	Argument	Poem	From acting on the Outside to Inside
Knowledge Produced	Relational	Reflective	Insightful	Active Practical Wisdom
Key Method of Expression	Relationships	Critique	Poetry	Exemplar Project
Structure	Interactions	Debate	Exchanges	Innovations/Artifice
Teacher's Role	Co-generator	Elder colleague	Muse	Guide/mentor
Learning Strategies	Conversation	Exposition	Osmosis	Do to try it
Research Style	Grounded	Reflective/distanced	Creative	Reflexive innovation
Role of Researcher	Networker	Court Jester	Social Expositor	Micro-worlds, concretized simulations, pilots, exemplar projects
Research Goal	Mutual self enactment	Reflexive	Imagination	System kaizen and system kaikaku
Basic Philosophy	Hermeneutical	Sceptical	Poetical	Constructivism
Focus of Reflection	Who are WE now?	What aren't WE saying?	What is MYHEART (emotion) saying?	What have I leant about myself through the innovation?
Occupation	Elder/member	Critic	Poet	Change Pioneer (Early Adopter one step behind the inventor)
Mindscape	Network	Discursive	Emotive	Nested Hierarchical or Distillated Integral
Casual Layered Analysis	Discourse	Discourse	Myth	Interface/integrated
Paradigm	Social Matrix	Discursive	Emotive Terrain	Intervention
Festival of:	Networking	Debating	Poetry	Artificing

Source: Table B1 of Wildman and Inayatullah, 1996, extended by these additional three ways of knowing
Please Note: These categories are indicative only and are not mutually exclusive. * poetry is a collective category that links theatre, sculpture and art.

These represent equally powerful yet not equally appreciated ways of organising the world. Extending this point and although a somewhat controversial point author's such as Plotkin actually argue that human intelligence evolves 'instinctively' under the control of genetically determined selective attention, whereby its operationalisation is analogous to the human immune response, which depends for its specificity and vibrancy not on external instruction rather on specific environmental stimulation based on the environmental experience of the host, which Dewey (1897) would argue needs to proceed be engaging the mind of the student in activities considered by the student as worthwhile for their own sake. Plotkin (1993:161-178), Wilson (1998:365). It may be that this genetic – environmental interaction has implications for understanding the two types of human learning.

C. How the hand determines mental activity

For instance a certain motoneuron which fires during movement of a given type (e.g. precision grip) will not fire during another type (e.g. power grip) in spite of the same muscles are implied in each grip. This suggests that a given motoneuron can be connected to several clusters of cortical cells and that movement required determines what cortical cells are activated prior to the agnostic contraction of any muscle sets. The logical consequence of this is that there are several mental/cortical representations for the same muscle set, each representation coming into play as a function of the type of movement/dexterity to be performed Wilson (1998:337).

In this sense knowing and doing are linked and Wilson argues they are linked in a two way relationship i.e. knowing helps doing and doing helps knowing. Wilson (1998:335). Manual dexterity however can be severely affected by damage to the primary cortical control area for the hand or the pyramidal tract of the brain. Such damage is tragically a common consequence of strokes and head injuries as well as cerebral palsy. Wilson (1998:334)

D. Manual dexterity and child development stages

Young children can make crude approximations of thumb to index finger movements within the first six months of life, however they cannot make other controlled movements of individual digits or control small objects in the hand with a precision grip until the age of one year – the time they also begin to show left-or right-hand preference. And it is not till much later, till age 5, that children gain the refined control of the frictional forces required to manipulate objects without using excessive force. Wilson (1998:334).

E. Mental computing power required by manual dexterity

The hand, and face, place heavy computational demands on the CNS (central nervous system), indeed the 'h'and (hand and fingers) uses about as much brain power as the rest of the 'H'and (wrist, forearm, shoulder), and altogether about as much as the face. The 'h'and and 'H'and respectively use about and twice and four times as much computing power as do foot and toes. Wilson (1998:320).

F. Tool and language use require different parts of the brain

Tool behaviour employs cognitive organisation (and hard wired neural circuitry) that develop along lines separate from those required for language (and which appear to be more generally available within the human species and associated primates than languaging behaviour) Wynn (1993:404). It is possible that infants use the kinds of thinking for object manipulation and early speech to about age 3 and thereafter the two kinds of thinking diverge as the brain sections used respectively differentiate, yet remain contiguous.

G. Human(ual)ity - Humans hard wired to manipulate objects

Humans are hard wired (have a predisposition) to manipulate objects, and such manipulation can then, but not necessarily, progress to tool use. Further such manipulation and potentially associated tool usage when linked to an expanding brain capacity introduced the potential for mimesis – prehistoric techne or skill transfer. Language is a much later development (a million or so years later) development, than tool use and is also associated with a different though contiguous neural location. Wynn (1993:402). NB: object manipulation does not mean one has the skill to make or use tools rather it is a prerequisite therefore. Further this can be take to suggest that dexterity esp. the manual version, can be taken to be a basic expression, and meaning, of our humanness.

In this sense the dexterity and humanness may be considered to be reciprocally related – so our 'humanity' is in effect our 'human(ual)ity'.

Summarising - Key attributes of Dexterity/Adroitness

- **Meaning 1:** Skill and grace in physical movement and/or mental focus, especially in the use of the hands; adroitness.
- **Meaning 2**: Mental skill and/or adroitness; cleverness in thought, practical learning and its application
- **Meaning 3:** Aptness of design
- **Meaning 4:** Hand knowledge cp. School knoweldge
- **Origin 1:** Associated in human evolution with the co-evolution of locomotive, heterotechnic co-operative, mimetic, manipulative, communicative and social behaviours in our human ancestors
- **Origin 2:**Intriguingly also dexterity is of course exhibited by monkeys and especially the great apes however its application in predation of large animals with its associated gestural and basic oral literacy (not textual/cognitive), associated food processing and transporting with this forming the basis for primitive exchange methods provide, is argued the basis for separating apes from hominids Wilson (1998:322), McGrew (1992:119)
- **Origin 3:** Fine motor skills do not arise in the child till around 5 while gross motor skills arise early at around 12 mths.
- **Philosophical implications**: Associated with retroductive thinking – inc. inductive thinking (mimesis – understanding the general principles involved in following someone else's movements/actions) and deductive thinking (dexterity – ability to dexterously undertake manual actions that result in the required tool or other implement or outcome required) in short a combination of a priori – from cause to effect; a posteriori – effects to cause reasoning
- **Summarising**: Dexterity is the expression of our neurological hard wiring and cognitive ability as humans
- We may argue then that for the purposes of this exposition, far from supplanting the so called 'pre-modern' sensibility, the distinction should be seen for what it is an artificial 'either-or' dichotomy rather than any neurological absolute. Rather that intelligence is Janus faced with two equivalent expressions thereof, *hand knowledge* and *school knowledge*, even moreso that they are braided together and even to varying extents are 'organically' inseparable.

BM Formative Principle 6: Foresighting the Bushie - Integrating Artificer Learning and Technological Foresight

Authors such as Jantsch (1967), (1975), Wildman & Baker (1985) and Jin (2005) have argued for the importance of technological forecasting. In later generations of this process the concept of forecasting has been transformed into foresight, as weaknesses in the overly numerist, positivist, physical focus of the former became apparent over the past several

decades. Clearly the Artificer Learner as discussed in this e-book is techne intensive and technologically oriented, both soft and hard technologies. So in this sense technological foresight may be seen as the most relevant futures methodology to use to deepen the analysis and synthesis of the Artificer Learning process. Indeed the Exemplar Project is a codification or crystallisation or concretisation of technological change itself.

Jin (2005:267-277) posits a four stage process in **Technological Foresight (TF):**
TF1: Technology itself
TF2: Technology with economic considerations esp. marketing
TF3: Technology+economics+politics
TF4: Technology+economics+politics+the social dimensions of the technological change
TF5: Technology+economics+politics+social+ environmental considerations viz. ESD
TF6: [All the above]+learning
[To Jin's categories of TF1, 2, 4 & 5 I have added TF3 in line with my research into Social Impact Assessment and as a practitioner in the social innovation field for over a generation and having seen several sound social innovations flounder in a lack of embeddedment in the conventional political process (allocation of resources) as well as at he party political process – votes count!! Furthermore I have added a sixth stage (TF6) that of learning as we need to establish an intergenerational process of cumulating wisdom from the TF process and reviewing and refining its results. Importantly Jin's conceptualisation of technology is conventional however her concept of technology as in the first several stages technology is separate to social so her concept of *technology foresight* is not equivalent to *techne foresight*]

This may be integrated with the four emergent attributes of **Artificer Learning (AL)** or the Artificer discussed in this e-book:
AL1: The Exemplar Project
AL2: The Social Holon
AL3: The Global Problematique
AL4: The Action Learning Process inc. the techne's/skills and understandings involved

These can then be brought together in a matrix as follows, based on an analysis and synthesis of the Exemplar Project:

Table 14: Exemplar Project Analysis Matrix (EPAM) - using the Exemplar Project to integrate Artificer Learning criteria and Technological Foresight stages

Artificer Learning Criteria ↓ Tech Foresight stages→	TF1: Technology	TF2: Tech+ Economics	TF3: Tech+Ecs +Politics	TF4: Tech+Ecs +Social	TF5: Tech+Ecs + Social +Environ	TF6: [all]+ learning	∑
AL1: Exemplar Project							
AL2: Social Holon							
AL3: Global Problematique							
AL4: Action Learning/Techne							
∑							

Source: P Wildman - 08-2006. NB: this matrix to be filled out for the specific exemplar project

Table 15: Applying the Exemplar Project Analysis Matrix

Artificer Learning Criteria ↓ Tech Foresight stages→	TF1: Technology	TF2: Tech+ Economics	TF3: Tech+Ecs +Politics	TF4: Tech+Ecs +Social	TF5: Tech+Ecs + Social +Environ	TF6: [all]+ learning	∑
AL1: Exemplar Project	Marine	Originally ½ of replacement cost – ended up 2/3rds. Overstepped the mark	Support from my wife & involvement of h/h economy (our business+ her earning capacity)	Sunfish, boat clubs, Aust Builders Plate	Rec fishing V's commercials	I am much more confident & capable of undertaking subsets of the EP e.g. bait-board etc.	
AL2: Social Holon	Family	Bushie dimension of the SH is disappearing – under Govt regulation & 100% cost increase pa	Poor service	Aust with economy of SME's largely ignored & ripped of by politicians	SH considered to 'own' & 'manage' env	Not much if any support for alternative ed. such as AL	
AL3: Global Problematique	Participation in DIY food + marine enjoyment	Economics is precluding BM as part of the solution of the GP	Existing politics just pillages SME's	SME's seen as part of the economic not social system	Bushie must be included in ESD	Techne, Social Innovation, interface are rare yet crucial	
AL4: Action Learning/Techne	Bait board	Costs always are underestimated	Interface crucial	Social interface and citizen participation is vital	'N'ature V's 'n'ature – man as manager, machine or monkey (I see man as monkey)	The boat & this e-book	
∑							

Source: P Wildman - 08-2006. NB: this matrix to be filled out for the specific exemplar project. SME - Small and Medium Enterprises (in Australia generally with 100 or less employees in manufacturing and 20 or less in service industries).

NB: application of the depth analysis methodologies of Causal Layered Analysis, Heuristic Inquiry and Reflexive Praxis are to be found in Chapter 5.

Some Groundings (G) for an alternative pedagogical design for Vocational and General Education

A basic critique of the present educational system

In a rather scathing critique of existing school systems (in the UK and Europe but relevant methinks elsewhere), and one with which I generally subscribe, Smith (2002:4-5) identifies five primary criticisms:

1. **Instrumentalism** and techno-rationalism - education seen as performance or behaviour i.e. means, not as learning and understanding, for instance the only time a student does anything direct in the physiosphere is to work on computers not design and build something to save the world so to speak
2. **Short-termism -** narrow focus on educational progression not linking to family or outside community or world or globe
3. **Mind-body dualism** - where as the student moves from primary school the mind is progressively split from the body (and we see the elimination of woodwork, craft, home economics and metal work) and in vocational education we see the elimination of critical thinking, creativity and innovation
4. **Managerialism** with no discussion of ends - normative and no input to centrally determined curriculum - even though parents and students and the local community are described as 'partners' they have no input to establishing curriculum priorities - pedagogy remains the prerogative of the elite educational bureaucratic experts.

Further Smith (2002:7) goes on to link such perversion of the educational system with what on a broader scale mankind is doing with nature. And one suggestion for remediation is as discussed elsewhere in this e-book phronesis - sound practical judgment - a term which incorporates enactment that is I argue can include the Artificer.

Australian Skill shortages

In Australia there is as of 2005-2007 ongoing and substantial skill shortages in many if not most vocational type arenas inc. construction, engineering, child care, even taxi and truck driving. Furthermore these skill areas are attracting wages several times what they were a in the early 2000's. For instance an outboard and motor mechanics attracts hourly rates over $120aud/hour, electricians and plumbers around $130/hour (@10-2006). This means that increasingly vehicles etc. are uneconomic to repair, renovations uneconomic to conduct even though the fault may well be a small one and the rest of the vehicle in perfectly good operating conditions, likewise in principle with renovations etc. For me this speaks to the increasingly unsustainable nature of our culture where cheap new product manufactured in third world nations/conditions is economically preferable to repairing and renovating existing products.

Dimensions of this skills shortage relevant to the Artificer Learning concept

The so called 'skills shortage' is really just short hand for the broader decline of the trades in Australia over the past one and a half generations. When I was Deputy Commissioner for Training I examined the Australian figures for Engineering and Construction apprentices and in all cases for an extended period (1975-1990) they had been in steady decline. Tragically in the 15 year period to today, since I have left any direct involvement in the Vocational Education System this trend has simply continued.

How the Vocational Education system has survived the past 30 years

The vocational education system has survived not on the back of the trades but rather on the introduction of: (1) competency based training - CBT - (which has kept the training

bureaucrats in business), (2) CBT assumes, rather mechanically, one correct answer which can be demonstrated behaviourally (never critically), (3) traineeships at skill levels generally below trades (which has boosted numbers in training and hidden the general and ongoing decline in the trades) and (4) the legal specification of the need of tradespersons to perform work previously not undertaken by tradespersons (for instance in computer repairs and CIT (computer and Information Technology) cabling even though computer work on low level DC as does CIT cabling qualifications are now required, (5) using the industrial model for CBT which has de-contextualised the trainer, trainee and training and removed all from the community and society in which they serve, this has had the effect of (6) breaking the link between these and other dimensions of labour market programs such as self employment, adult and community education, local employment initiatives, ethical finance etc.

Attributes of the Skill Deficits in Australia relevant to Artificer Learning

There are several considerations to this 'skill deficit' relevant to the theme of this e-book:

1. Huge and rapid rise in wage rates for the trades
2. Explosion of house prices in mainland Australian capitals, having trebled in the 2000's
3. Generational advocacy at home, in the school and in the broader culture, to children considering education options and now cultural belief that the bright children move from school to Uni not school to trade
4. On going separation of vocational and higher educations i.e. education for thinking V's doing with the former maintaining its supremacy
5. Elimination for instance in Queensland of any specifically post trade awards, i.e. once one does ones trade that's it if one wants to continue education for ones vocation one must study management - no such thing as a 'Professor of Plumbing' in Australia
6. Furthermore this means, unlike other Western countries such as France for instance, no master tradesman's qualification, no artisan qualification and certainly no artificer level qualification
7. At ground zero there is no automatic requirement for all students to do for instance 'shop' and 'kitchen' that is wood working, metal working and food working are no longer de rigueur or compulsory subjects in Australian schools they were two generations ago
8. Furthermore where they are included they have been deskilled to a point where they are just almost simplistic and behaviourist such as home economics has become cooking, wood and metal works have become cutting and welding etc. with out a link to the 'big picture' or depth of heritage from which the trade arenas come from nor the world tomorrow that they can contribute to.
9. Totalitarian approach to vocational education whereby there are nationally approved course 'packages' with almost no ability to develop locally responsive or short term ones. This is a crucial point in that as one moves to post trade levels then variability flexibility, synthesis, idiosyncratic focus are vastly more important than uniform national skill agendas. It's like comparing a PhD topic to the key topics in an undergraduate degree. The latter has few degrees of freedom whereas the former largely individually sets the research question
10. As explicated elsewhere in this e-book the almost Tayloristic obsession in existing trade type courses on 'behaviour', not understanding in performing skills which have been disaggregated to units with no focus on creativity, problem solving, citizens role or synthesis all of which are crucial in a artisan and artificer type vocational experience.

On outline of the cumulative effect on the Trades

All these have had the effect of: (1) further marginalising the trades so much so that the Federal Government has now introduced a whole additional level of trade colleges, separate to the existing State based TAFE colleges, to 'meet the need' at a time when even the TAFE colleges aren't even full, (2) ongoing decline in numbers of young people seeing trades as a socially respected vocation, (3) further fracturing the link between labour market programs and removing integration between programs and flexibility with local responsiveness within the trade skill areas and (4) all but removing the possibility of post trade qualifications for instance in the arena of master tradesman, rare trades, artisan and artificer levels, (5) breaking the link between the trades and the broader society in which they locate and serve.

Where to now re- grounding Vocational Ed

So if one were to take this critique on board and one were designing anew, or at least undertaking a substantiative redesign of, the vocational education system and the vocational components of the conventional education system one may well ask what are the groundings from which a deep improvement even transformation of the existing system could emerge? The following groundings are attempts to outline such key re-design parameters. Grounding also has to recognise the various intelligences crucial to a successful tradesperson such as emotional, logical mathematical, social/intrapersonal and Artificer as per Appendix I - The Artilect. These intelligences need then to be overlayed for instance into Wilber's holonic integral approach of the two axes of inner | outer and individual | cultural. In the final analysis as discussed in Chapter 2, an artificers approach is instrumental and physiospheric so it in a sense expresses such an approach and possibly helps condition one i.e. reactive and possibly proactive.

G1. From Tech/text/intelligence to craftsmanship/song/imagination

Voc Ed design: An alternative focus for education that recognises the importance of tool making and its associated hand-eye dexterity as well as its prior evolutionary emergence to language would be to develop educational systems that, rather than focusing on the trinity of objective technology, abstract language and its associated text, and linguistic intelligence, rather seek to explore the linkages between craftsmanship, song and imagination. Ingold (1993c:451) in his paper on 'Epilogue: Technology, language, intelligence: a reconsideration of basic concepts', uses the term imagination to refer to reflexivity or what I may call reflexive praxis, what Ingold also calls social learning.

Further Ingold (1993c:343) in his paper on 'Tools, techniques and technology', compares object manipulation, spoken language, puzzle solving with artistry/artisan/artificer, gestural/ sign language, imagining solution and then trial and error. The following table seeks to outline these relationships.

Table 16: Overcoming Logocentricism: conventional cp. alternative approaches to Vocational Education

	Conventional approach to Voc Ed		
	Objective Technology	Abstract language	Linguistic Intelligence
	Object manipulation	Textualised Spoken language	Puzzle solving
	Alternative conceptual design for Voc Ed		
	Craftsmanship/dexterity	Song	Imagination (creative reflexivity – RP)
	Artisan/artificer	Gestural/sign language	Imagining a solution, drawing from experience and seeing if it works 'in thought'

Source: P Wildman 07-2006 Drawn from Ingold (1993c:451)

Importance of drawing as a form of pattern language alternative to text based language

Not only do we need to concentrate on the craftsmanship we also need to focus strongly on drawing, not as in blueprints but more as indicative drafting or mud maps so to speak. Indeed this requires us to take a step further and recognise the equivalence of a right-brain mode visually based concrete language, such language maybe seen as a counterpoint to the ascendant left-brain mode text based, and abstract. This is an extremely important point and is almost always overlooked completely in systems of Vocational Education. Such a language will allow, for instance, those young folk especially young males so alienated from the abstract, text based, regimented school system to gain confidence at the concrete level and then through drawing and practique projects to move to more generalised and ultimately theoretic understandings of the 'task at hand' from 'their lived life'. Further more drawing is something we do with our hands, with our hand knowledge.

G2. Hemispheric genderised specialistions through gender based patterns of brain lateralisation

Language and text (and therefore the left hemisphere – right hand) (female preference) has been a primary focus of investigations into brain development, whereas tool production and use on the other hand requires visuo-spatial skills that are dominated by the right hemisphere (male preference – left side of the body) has not been as fully explored. Falk (1993:217)

Visou-spatial, tool manufacture, mathematics and music – **Right brain – tools – male** – left hand/side*
Language, text, emotional decoding, fine motor skills – **Left brain – talk – female** – right hand/side
* males may well have privileged access to right-hemisphere imagery codes and females privileged access to fine motor skills and textuality.

So that as technology becomes disparate from the social and textuality becomes almost universal, esp. with the incipient melding of computers, telecommunications and mobility, women or so-called pink collar jobs are in the ascendancy and concomitantly as technology, rather than techne, reduces the need for human involvement in construction and manufacturing so these traditional male type skill arenas have comparatively fewer to labour market opportunities.

G3. Two forms of Co-operation: Heterotechnic & Symmetrotechnic

Reynolds (1993:414 to 410) argues strongly that we need to move the anthropological conception of tool making *from* one seen as the product of a lone worker (which is applicable to apes) who is basic 'h/jack of all trades and master of none' so to speak *to* that of heterotechnic co-operation (HTC)* (different crafts undertaken at artisan level by different individuals simultaneously co-evolving a tool/product e.g. manufacturing a canoe or hut or bow and arrow) in a Heterotechnic Face To Face Task Group (HTF2FTG). Such a grouping was a pivotal concept original conception for me behind androgogy i.e. Adult and Community Education (ACE) and Vocational Education Wildman and Schwencke (1993). And is in a sense a form of community artificing which, for adults as a community working bee, and for children it could be called simply 'play'. As such this is opposite to what Reynolds (1993:412) calls symmetrotechnic/symmetric co-operation (STC) (all participants do the same thing at the same time in order to facilitate a common goal e.g. tug of war, typical school class/pedagogy).

Indeed HTF2FTG and the construction of polylith's** are empirically associated, as they invariably occur together in humans but neither occur in apes, whereas apes do manufacture polypod's**, ***. Reynolds (1993:422). And the construction of polyliths depends on social organisation i.e. the social holon within which tool manufacture and use is occurring. In short HTC requires the integration of individual minds into a larger co-operative framework or entity with synergistic co-operative interfaces between the various disparate skills brought into 'play' in the construction/manufacturing process. Reynolds (1993:423). So early human manufacturing may well be about more than the '3C's' of Climate, Calories and Competition and rather be about Mutual Aid, Co-operation, Play (MCP). Reynolds (1993:426).

* Several dimensions of HTC can be identified such as: **(1) degree of agentic volition** – is the participation at the discretion of the agent viz. a vi a victim at a cannibal HTC could be described as being able to express a low degree of agentic volition; **(2) formal or informal** – not that these are mutually exclusive rather that levels of structuralism and formality vary for instance compare the spontaneous manufacture by a group of a canoe V's a school working bee V's a council rubbish pick up.
**polylith's are constructions that can be rotated on their axis and their coherence is independent of gravity e.g. a table, whereas polypod's are stacked constructions and rely on gravity for their coherence e.g. a stack of plates.
*** the social dimension inc. organisation and level and type of co-operation of manufacture cannot be seen from the ancient tool itself and is almost always written out of the picture completely or at best treated by anthropologists as secondary or derivative but for Reynolds (1993:423) it is central. This is achieved by focusing on the physical tool itself as the end product a form of misplaced concreteness, postulating its manufacture by the lone jack/hack of all trades, and considering social issues as at best derivative

G4. Disconflating of Techne and Technology - the emergence of the technecian cp. the technician

Re-skilling technology will be necessary to get the man out of the machine and back into the treetop toolshed, garden or kitchen again (so to speak) – as per the section 'The Ghost in the Machine' and esp. Table 1 above. As we all know tree climbing takes great dexterity intelligence, rather than purely cognitive intelligence. Here we have the re-inscription or reprising of techne not as some external technique or echoes from a discarded past and now faded necessity but rather as an expression of active practical wisdom something crucial for all of us to touch as intrinsically worthwhile, for our humanities sake. Heidegger (1977:23) echoes a similar call when he calls for a return to techne a return to poiesis a techneology of bringing forth of *aletheia* - which may be seen the truth that first appears when something (some work, statement or for instance some exemplar project) is seen or revealed.

For Heidegger aletheia is to take out of hiddenness to uncover. It is not something that is connected with that which appears. Rather it is an underpinning 'T'ruth or condition. So that both technology and techneology represent discrete and even counterpoint metaphysical cosmological ontological and epistemological positions.

G5 Use Techne as Artificer knowledge to reconstruct Technical knowledge

Re-establishing the cruciality of knowing through thinking and doing V's Knowing as thinking and doing as behaviour. Such a reconstruction will in implementation at a concrete level for instance mean catering directly for the DIY artificer/owner builder. Techneque then relies on establishing a link between perception and action in the individual (and were relevant group) artificer, whereas technique weakens this link. Thus the integration of thinking and doing are crucial to this reconstruction. Somehow we have to overcome the great divide. One way of doing this is to transform the relevance of Artificing to society. Indeed this has been a theme of this e-book.

G6 Reverse the Transformation of Artificer Heuristics into Technical Algorithms

As outlined in the section above on the above 7 Stations of the Transformation Heuristics of technique have been transformed into Algorithms of operation. A process of reversal is needed, otherwise as discussed above; man qua human runs the risk of becoming machine qua technology. One method for such reversal is to recapitulate and extend the ancient art of the artisan – herein called the artificer or Artificer. In this process the exemplar project represents the transformation of the journeyman's piece into this struggle for reversal.

G6 Transform Vocational Education from Operating Technology to Practical Social Learning

This transition or re-transition, outlined in G1 above, emphasises the interaction between *'M'an and nature* is essentially a learning one mediated by creative relativeness incorporated into heterotechnic co-operative technique rather than technology operationalised in mechanical manipulations, i.e. it is the interaction of *'m'an in nature*. This learning re-transition is for Ingold (1993a:431) social learning and for me Reflective Praxis. Such a transition will at a concrete level for instance mean such social learning could be recognised for instance through the re-introduction and transformative understanding of the exemplar project as part of formal Vocational Education type recognition as Artificer (for instance). One could also 'imagine' a web site for such EP's acting as a collegiate clearing house.

G7 Voc Ed to develop 'trade interface' as a parallel emphasis to 'technical specialisation'

Interface is a crucial and oft overlooked aspect of vocational activities today. Furthermore interface emerged as a key grounded theory sub-category of the Exemplar Project category for the Grounded Theory research undertaken to identify the key characteristics of the Artificer Learner/Bush Mechanic for this e-book. Interface in this regard to have two key dimensions a horizontal one i.e. with, for instance, key associated trades and a vertical one i.e. basic involvement in the design process. In this regard one could envision say the final year of a building construction apprenticeship being devoted to other related trades within which could become available a 'limited' ticket – as in the electrical trades at present.

G8 Voc Ed to introduce post-trade trade not management qualifications e.g. the category of 'master tradesman', 'master artisan', 'master artificer'

Presently in Australia once one obtains ones trade progress in study takes one to management courses. Post trade qualifications have been discontinued. There is no trade expertise qualification of master tradesman let alone master artisan or master artificer. Management is a part of the tertiary education system and as such it is firmly cognoscenti i.e. thinking not doing. This e-book sees such a position as a profound epistemological mistake though thoroughly understandable and indeed predictable from the analysis of this research project. In short one can't even get to the page in the formal system with artisans and hopefully artificers on it unless one can get to a chapter called 'post trade qualifications'. Such master tradesman would be able to employ an apprentice and or a 'journeyman' i.e. a tradesman seeking to become a master by entering a form of expert adult apprenticeship. France for instance does not have this dilemma.

Furthermore we could envisage a 'master tradesman' or 'artificer' who gains expertise not only in a particular trade area but also in related skill areas (horizontal skills – multiskills) plan reading but also in design leading to the plans (vertical skills – depthskills) and in co-ordinating the various horizontal skills on the job to the end specified by the customer.

Such an trans-disciplinary master artificer then can employee apprentices, oversee the interface aspects of the on the job trades, as well as contribute to design considerations of overall projects.[16]

G9 Manual and its associated Mental Dexterity are crucial

Dexterity represents what one may call 'hand knowledge' and represents in comparison to the conventional 'symbol knowledge' equally powerful yet different and not equally appreciated or respected, methods for organising worldly phenomenon and being in the world. In effect the two types of knowledge represent different 'ontology's'. Mental dexterity in this sense is not so much the ability to manipulate symbolic knowledge rather it represents the mental equivalent of the manual dexterity i.e. step by step logical organisation with skill applied in each sub-routine in order to undertake the task at hand.

G10 Heterotechnic Co-operation to be pivotal

Group work aimed at a common Exemplar Project to use hetrotechnic co-operation as well as individual Exemplar Project to use symmetrotechnic co-operation both to be integrated with a deep respect for, and commitment to, the development and refinement of dexterity. Such dexterity can be drawn from the ==craftsmanship, song and imagination== sensibility trinity (which includes yet transcends and thus transforms the conventional behaviouristic approach).

G11 Such dexterity to be based on Mimesis and Actualisation

Mimesis as discussed in this e-book is in brief 'copying with understanding' moreso it is enactment based on that observed from the perspective of the observer. Further the generation of the Journeyman's Piece or Exemplar Project though this 'copying with understanding' offers the opportunity for '*actualisation through service*' through what Eisler (1987) calls actualisation hierarchies cp. today's domination hierarchies. This is the actualisation of higher functions, not only in the overall social system (system self-actualisation), but also in the individual human (self-actualisation). In some regards evolution may be seen as a process of holonic self and system actualisation.

G 12 It Just Is Cricket

In top level sporting, such as in cricket, the conventional scientific separation of thinking and doing has been found to be a major drawback to players' improvement. It has been necessary to emphasise the link between hand and heart and head. For instance in 'c'ricket a crucial part of the game is batting and here 'hand intelligence', 'hand knowledge' or 'hand awareness' or just being 'handy' is crucial for success. Possibly an example of 'mindfullness' of the moment or as one might say in this e-book 'handfullness', 'embodiedness', 'enhandedness' or having a 'feel' or the 'heart' or the 'ticker' for what one is doing.

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[16] In this model Vocational Education will need learning facilitators who have practical intelligence, moral virtue and intellectual intelligence (in that order). Further such an approach which embraces interface will need to be trans-disciplinary. Today the dominant mode of education is still of the late 1700's yet we are in the era of intelligence services, the web and distributed intelligence. The ancient classification and reification of 'disciplines' as well as the old pedagogical 'sage on stage' mode of the old educational system (inc. Voc Ed) cannot satisfy the need of society, industry or the learner – yet it continues. Master Artificer in this sense is not only a 'professor of plumbing' but also a facilitator of learning by others e.g. apprentices about plumbing and its relationship to other trades/disciplines in construction engineering. In this sense we can move pedagogy from a 'uni'versity to an androgogy of the 'poly'versity. Wildman (2000). The focus of voc ed needs to shift from the creation of 'experts' (experts in analysis of particular subsystems' to 'synthperts' or 'polyperts' (polyperts have practical knowledge in the synthesis of several related fields and the proactive linking of 'thinking' and 'doing').

In this sense peak achievement in sport has meant a removal of the traditional separation of thinking and doing. In fact the obsession the West has with this separation in schooling, vocational education and bureaucracies in general may ultimately be seen as a form of structural social disease that had to be overcome for peak achievement in sport, social innovation and I suggest sustainability. The west desperately needs a new Philosophy of the Mind a philosophy of embodiedness of consciousness – indeed our very survival depends on it. It just *is* 'C'ricket.

The importance of Hand Eye co-ordination and learning in the Preschool years as seen through Gross and Fine Motor Skills and impacted by the legal system

Such co-ordination as is involved in cricket has its origins much earlier that is in very early childhood. Gross Motor Skills (GMS) is the key – the expression of GMS involves what one may call 'robust play' that interacts directly with the external world, i.e. a sort of childhood version of 'handfullness', and includes jumping on one foot, hoping. The direction of this is in the direction of Gross Motor Skills to Cognitive Development. Indeed the treatment for some co-ordination disorders involves physical manipulation for many hours per day on the basis that this can generate cognitive pathways which can then generate greater levels of physical co-ordination.

 GMS involves risks and skills that the child has to evaluate and undertake herself – balance boards, monkey bars, sac racing, three legged racing, jumping in and out of tyres. For instance in the past five years swings are being removed from playgrounds in child care centres in Australia whereas a generation ago they were actually required on the playground list.

Risk is no longer a part of the local assessment with the child playing a part it has been appropriated by lawyers and bureaucrats. All of these have been removed from playgrounds even to the extent that grass has been removed and replaced with 'soft fall'. The drop off in GMS over the past decade has been estimated by one person at around 20%. Nowadays there are even groups for instance 'busy kids' who come in to the childcare centre, and for a price per child will do the balance beams etc. Such GMS development is no longer part of everyday pre-schooling. Whereas Fine Motor Skills (FMS) have seen a rapid rise in their use as they are seen as 'safer', FMS includes for instance puzzles, hammer boards, construction toys (inc. lego building blocks), shape sorters, cutting using scissors etc. Today the vocational education one receives one can learn how to make glue but not what to do to do this i.e. cognitive not practical.

Such is the reality of removing risk from the playground we remove the necessity for children to undertake GMS development either self or other directed. Such hand-eye co-ordination is crucial later in life for sports, driving a car and many day to day activities let alone Artificer type activities.

Cooperating Muscle Groups vital for the Artificer's Fine Motor Skills

When muscles cause a limb to move through it's range of motion, they usually act in one of the following cooperating groups:

1. **Agonist** - These muscles cause the movement to occur. They create the normal range of motion in a joint by contracting. Agonists are also referred to as "prime movers" since they are the muscles that are primarily responsible for generating the movement.

2. **Antagonist** - These muscles act in opposition to the movement generated by the agonists and are responsible for returning a limb to its initial position.

3. **Synergist** - These muscles perform, or help in performing, the same set of joint motion

as the agonists do. Synegists are sometimes referred to as "neutralizers" because they help cancel out, or neutralize, extra motion from the agonists to make sure that the force generated works within the desired plane of motion. These are crucial for the fine motor skills so necessary in Artificer work.

4. **Fixators** - These muscles provide the necessary support to assist in holding the rest of the body in place while the movement occurs. This process helps to stabilize the muscle. [Source: http://www.chap.com/flexinfo.htm]

For example: when you flex your knee, your hamstring contracts as well as your calf and buttock. These are the agonists. Meanwhile, your quad relaxes allowing for the motion to occur and serves as the antagonist. The calves and buttocks serve as the synergists. Agonists and antagonists are usually located on opposite sides of the joint, like your biceps and triceps, while synergists are usually located on the same side of the joint near the agonist.

The following is a list of commonly used agonist/antagonist muscle pairs; Pectorals/ latissimus dorsi (pecs and lats); Anterior deltoids/ posterior deltoids (front and back shoulders); Trapezius/deltoids (traps and delts); Abdominals/ spinal erectors (abs and lower back); Left and right external obliques (sides); Quadriceps/hamstrings (quads and hams); Shins/calves; Biceps/triceps; Forearm flexors/extensors

Clearly there is an organistic metaphor for broader considerations of the bodily actions of the Artificer for instance in an Exemplar project viz. first one needs structure to hold (fixate) the whole project, secondly one needs to push and pull against the resistance of yourself and project (angonistic and antagonistic - agonism or tensegrity is also a school of philosophy which contends that conflict and tension is better than the failures of ideational and materialistic philosophy) and finally one needs fine motor skills to synergise and synthesise ones physiospheric actions.

G 13 Creation and application of (a) PIDIL and (b) the Exemplar Project Analysis Matrix (EPAM)

G13(a) Taking the averaged PIDIL ratio of we may well ask from an indicative perspective what could a Bushy based Voc Ed system look like. An argument would be that while one recognises the importance of I in the heuristic, in an educational setting such a ration would need to be wound back, however it would be hard to make the point that it should be any less important than I i.e. conceptual noospheric 'thinking'. As explicated in Appendix project records indicate an P-I-D-I-L 'effort' averaged over the four projects gives an index of 1-3-3-100-3 hours and 1%-3%-3%-90%-3% percent effort distribution. This is referred to as the 1-3-100 Rule of Thumb for I-D-I.   This leaves us with a suggested Vocational Educational design figure of 1-3-3-10-3.

PIDIL approach as such militates against fixed syllabuses and insists on collective, inc. parental and broader community input in determining curriculum priorities as related to the Problematique. This would tend to put an end to the 'sage on stage and sage on page' approach to education.   Furthermore it would insist that children have experience in, and contribute to, shaping their education process from P to L so to speak. Presently education systems are designed for L only. I believe the PIDIL system could well be worked into mainstream education however in this e-book I make a claim/suggestion only for Vocational Education.

G13(b) By focusing on the Exemplar Project the Artificer Learning criteria can be broadened by the application of Technological Assessment stages via. Exemplar Project

Analysis Matrix (EPAM). This is detailed in the above section in Bush Mechanic Formative Principle 6.

G14 Artificer's Sauvage Ontology from Australopithecus habilis to homo dextera

Modernity's ontology: cognition - I think (& don't do) therefore I am - homo cogito

Modernity maybe seen through the Descartesian maxim 'I think therefore I am' even to the point of eschewing action of doing which is now considered 'operational' and thus pejorative.

Artificer's ontology: sauvage dexterity - I make therefore I am - Australopithecus habilis redux enter homo dextera

The artificers/bushy's maxim is 'I make therefore I am'. Evolution shows that it was not brain size growth that led on the track to the emergence of the first human 2million years ago in Africa but the use of tools this was possible with a brain of 1/3rd the size of our 1.5l brain of today a smart, but upright, ape - yes very much ape in appearance and brain capacity very very much ape, indeed around three times that of a dog. These hominids were smaller than modern humans, on average standing no more than 1.3 m (4'3") tall.

The small size and rather primitive attributes have led some experts (Richard Leakey among them) to propose excluding *H. habilis* from the genus *Homo*, and renaming as *Australopithecus habilis* (AH) the *handy ape* or *ape who is handy* (AH). In terms of this eBook, utterly unenlightened as I am in this particular area, the latter seems to be endorsed i.e. that *habilis* was an ape with hand knowledge and this was the primary motivator for evolution so that even though *habilis* was an ape in the biological sense, in the techne sense he was human thus the redux term *homo dextera*. NB: this in anthropological terms is the opposite of what the authorities expected.

What they expected was humanesque Piltdown Man (PM) from the UK and they got him - large brain, relatively tall, little hair, human face and so forth living say 1million years ago - but wait there's more - it turned out to be a massive con job and the whole elite of British and even global science got taken in - how easy when we want an easy solution that fits with our preconceived notions is it to take in the supposedly 'untakeableinable'. Homo Dextera (HD) is not comfortable with many of our historic anticipations regarding the emergence of hominids was PM and HD is basically at the opposite end of the acceptable spectrum.

Other Species as 'a'rtificers - Viva Gaia!

Anthropological anticipation: (1) I acknowledge this and suggest that it appears to this inexpert observer that if the Artificer thesis is valid then it is to the end of the spectrum towards HD/Africa that we will find more realisations of what it is to be human than in the PM/Europe type end of the spectrum. (2) Other 'higher' animals will and do show the inquisitiveness that underpins the 'urge to artifice' recall the saying 'curiosity killed the cat' and so forth. Already some primates and even one species of (Caledonian) crow make tools, can do basic mathematics, have language and culture and some level of consciousness, for instance some elephants - African, some dolphins in some species and some in a species of apes (not Gorillas) recognise themselves in a mirror). (3) Artifice itself is not unique to humans, though neurologically dense brains are. In the noosphere Home Sapiens may well be unique (and we like it that way!!) yet in the physiosphere and artificeosphere humans aren't. Maybe the urge to artifice is a cross species form of play,

which may well be one expression of the *bon vitae* of life in the joy and exuberance of living. Viva Gaia!! (15-12-2007 PW).

What then is an essence of humanity?

If we take the four criteria for the Artificer then AH meets to some extent criteria one on the *exemplar project* viz. his stone axe, generally certainly the second as to the *social holon* as extending clan group come tribe, possibly not the third in terms of the *global problematique* although a yet to evolve dreamtime cosmology would come close however that was at least 1.9million years away, and to a large extent the fourth *learning* though its being embedded in the social holon with mimesis etc.

Taking this view as a key determinant of what it is to be human then:
It is not the mind as with the Scholastics and their acquisition of abstract knowledge.
It is not the illuminated mind as with the Illuminati.
It is not the math-mind as with the Scientists al ar Newton and their formulaising the stars.
It is not the higher mind as with the Esotericist and their search for illumination.
It is not the voice as with the Discoursists and their discourse democracy.
It is not the heart as with the Troubadours and their romantic quests.
It is not the body itself as with the Dionysian's and their pleasure principle.

It is the hand as with the Ape Artificer as the Beethoven composing, shaping, making and playing. Here Epistemology intersects the hand in the lived life, so epistemology can no longer be exclusively noospheric, but now has to include the physiosphere which in turn includes sociosphere and biosphere as nested systems. Thinking and Doing are relinked as are Subject and Object and we see again the outline of a participative consciousness.

The (modern- or post-fall) human being has made a substantial ego trip through the above contexts of scholastica, illuminatia, science, esotericism and so forth and have thus cluttered and rigidified the formerly sauvage uncluttered and flexible co-creative mind, which was fully and fearlessly active (given the available resources and worldly experience) in the 'first human'. *Homo Dextera* places the critical attribute of being human being as the hand cp. the mind as in *Homo Sapiens* or *Homo Cogito* or the results of the hands work as in Homo Fabre (fabricator) Arendt (1995:155) or the closer *Homo Habilis* (handy man) in reality *Australopithecus habilis* reduxed as *Homo Dextera*, a species manifesting a supreme expression of hand knowledge - manual and mental dexterity - doing and thinking!

This then is a vital station in our journey in this eBook the station of ontology.

<mark>Chapter 10</mark> – The Hand - outlining some pedagogical implications of the Exemplar Systems Development/pro-artificer learning approach to learning

Although largely outside the scope of this work listed below are some pro-Artificer policies, schemes and arenas I have come across in my experience and research for this e-book. <u>These policies are illustrative only</u> and are not meant to be exhaustive or complete in their specific detail, rather to illustrate that there are programs that have the effect of building techne back into technology and embedding it in the social in favour of active practical reason expressed singly and jointly by citizens seeking mutual assistance. The extent to which one considers such a build back as retouching an important and largely lost aspect of our humanity is the extent of importance one attaches to these outlines.

Generally speaking these policies assist in the 'artisan qua. entrepreneur writ large' first and not the enterprise itself and further they tend to focus on commercialisation of an idea in the various supports for business start ups. Although not directly and completely fulfilling the four artificer/bush mechanic criteria these initiatives do come closest to recognising the importance of techne and individual agency as well as the 'flow-across' effect in the process of economic development.

Many of these have been mentioned in the text and are collected here to allow the reader an overview, and glimpse, of the pragmatic dimension of the topic. A more complete and fully blown exercise on a selected global basis would be a logical next step.

Linguistic perspective - the centrality of the hand

English draws strongly from the Latin language following are some illustrations in Latin of the importance of the 'hand' as basic roots/subtext to modern day English. Similar searches could be done for German.
[http://humanum.arts.cuhk.edu.hk/Lexis/Latin/]

1. adsum : to to be at **hand**/ to come
2. ansa: a **hand**le
3. autem: but, on the other **hand**, however, moreover, also
4. belle: prettily, **handsomely**, charmingly
5. bellus: beautiful, pretty, charming, **handsome**
6. chirographum : autograph, person's **own handwriting** /written charter
7. comminus : hand to hand, in close combat
8. comprehendo: to seize, arrest, take prisoner, catch red-handed
9. contrecto: to touch, handle, feel
10. defero: to hand over, carry down, communicate, offer, refer
11. dextera: **the right hand,** dexterity
12. incipio: to take in hand, begin, commence
13. laeve leve: **left-handedly**, awkwardly
14. laevus levus: the left hand, left side, left-handed
15. manus manus: hand, band, **handwriting**
16. nam: but now, **on the other hand** /surely, for it is certain
17. patrius: **handed down** from one's forefathers
18. praecox: precox: ripe **beforehand**, premature
19. praedestino: to determine beforehand, predestine
20. praejudico: to decide beforehand ie plan
21. praelibo: to taste beforehand
22. praenuntio: prenuntio: to foretell, announce before hand
23. prevenire: to come to, **go before hand,** attend
24. prodo: deliver, transmit, **hand over,** disclose
25. promptus: **ready at hand**, visible, apparent
26. promutuus: (cash) advanced, prepaid, arranged beforehand
27. pulcher pulchra pulchrum : beautiful, handsome, fine, fair
28. reddo: to impart, render, return, hand over, surrender
29. rursus: **on the other hand**, in return, back, again

30. satago: have one's hands full, have enough to do
31. sive: conj, **on the one hand**
32. speciosus: beautiful, **handsome**, imposing / specious plausible
33. subsum subesse: to be near, **close at hand**, be under, be subject
34. supero: to be above, **have the upper hand**, surpass, conquer, overcome
35. tractare: **to handle,** manage, perform
36. tracto: to drag, handle /treat, discuss, deal with
37. trado: tradidi : traditum : surrender /hand over /transmit, teach
38. vicissim: in turn, on the other hand.

Some **further 'handy' words/terms in English include** 39. handyman, 40. hand over heart, 41. lend a hand, 42. hand over fist, 43. in-hand, 44. out of hand, 45. back of the hand, 46. back hander, 47. on the one hand, 48. factory hand, 49. farm hand, 50. dab hand, 51. with a sweep of the hand, 52. don't show your hand, 53. by hand, 54. hands on, 55. sleight of hand, 56. underhand, 57. overhand, 58. all hands on deck, 59. handle with care, 60. hand up, 61. thumbs up, 62. hand it over, 63. give us a hand up, 64. hand down, 65. hand over, 66. hand back, 67. hand around, 68. hand out, 69. beforehand, 70. thumb through cp. think through, 71. finger food, 72. finger puppets, 73. hand to mouth, 74. clenched fist, 75. the two and five fingered salute, 76 trigger finger, 77. cuddle a baby with both hands, 78. hold it with both hands now!, 79. intimate touch, 80. light touch, 81. fingertip control, 82. stroke, 83. pat, 84. smack, 85. shake hands (handshake, hand shake), 86. preening, 87. primates pick fleas off one another with their hands and fingers, 88. grooming, 89. he talks with his hands, 90. gesticulating, 91. draw a mud map, 92. tactility, 93. mime, 94. sleight of hand, 95. put your hands together - clap, 96. Zen Koans - the sound of one hand clapping, 97. hand eye coordination, 98. DIY , 99. hand grip, 100. handbag, 101. one needs legs to run from fear and hands to hold with love, 102. holding hands, 103. the touch/caress of your hand, 104. give a hand to. 105. point out and so forth.

These linguistically show the importance etymologically of 'the hand' in everyday parlance, tool manipulation (instrumental), emotional (affective), gesticulating (cognitive), narrative (mime), the golden rule - do unto others as you would have them do unto you (normative).

Cognitive perspective - centrality of the hand

Wilson (1988:320) maintains on the basis of research work by Penfield and Rasmussen in 1950 in their famous homunculus diagram which shows that the manipulation of the hand and face place major computational loads on the brain. If we take a (w)holistic view of the brain as extended to body and body focused into brain then it takes a lot of brain to operate face and hands and vice versa the movement of hands and face exercise a lot of brain. Indeed their diagram shows more computational power is allocated to the hand than to the face.

This then for me is the secret of the Artificers Sauvage ontology. It was not the brain that gave us the hand, techne and tools it was tools that gave us techne and the brain. This is the emergent, though uncomfortable for status quo, them from archaeological research viz. the hand came first then tools a half a million years later then the brain grew to its present size a million or so years after that.

Implications for pedagogy - vocational and higher ed.

The implications of this fundamental change in ontology for education is critical and words like 'funfilment' come into 'play' even 'playfilment'. Here Intelligent Narrative Play Learning (see Chapter 13) and the Adult Learning equivalent of the Exemplar project convolve or even intervolve the adult within the child - androgogy a special application of pedagogy.

This approach leads one to suggest that modernity's schooling pedagogy is 'anti-human' and to **anticipate even predict that in arenas in schooling where such physicalisation of dexterity is precluded issues of serious behavioural problems would emerge**, issues such as truancy, bullying and petty crime esp. for **boys and later as delinquency for young men.**   One only has to look at indigenous leaning systems to see how this need is addressed. I recall the most poignant movie 'Once were Warriors' about the decline and

drug dependence and violence in some parts of the Maori society in New Zealand, which in a sense is the above lack of terrain for expression of male energy turned in on itself just as in Australia it becomes Deaths in Custody in indigenous communities. Wildman (2002c), (2002d), (2004d). I would see this as part of a broader systemic violence of 'Once were Artificers'.

Thus especially with the present education of boys physicalisation is almost completely lacking and over the past three decades sports, home economics, tool shop, wood work, metal work have been all but dropped from the curriculum. They may occasionally occur as an add-on and seldom if ever as the core/backbone of the curriculum. Further in the broader society such practalisation is no longer valorised and is even now mildly despised - at best it is tolerated as a 'hobby'. There is even an argument that **in a consumerist society such artificing is more a hindrance than a help**. So that in order for the planned obsolescence hyper-consumerist economy to triumph this urge to artifice is one of the first things that must be harnessed in the factories of the Industrial Revolution then got rid of as the machines i.e. technology take over production.

Attributes of the Conventional Pedagogical Teaching Constellation (CPTC)

The following links are in contradistinction with what may be called 'driven learning' or the 'conventional pedagogical teaching model' which, as discussed at some length in this eBook means: externally and expertly set curriculum, symmetrotechnic co-operation, one size fits all, none or minimal and operational involvement of students, parents and community, non participation in governance of any parties except pedagogical hierarchy, authority of teacher unquestioned and unquestionable, curriculum generally noospheric and separate from the lived life of the student, lock step age cohorts as separate years, no vertical linking via mentoring, no intergenerational involvement except via. authority figures and so forth. This constellation starts somewhere else it does not try to shoehorn a different approach into a pedagogical straightjacket as so often happens. We need a complete re-embodying of schooling a re-think, re-design and re-enactment to be successful where the existing system has so amply failed.

Conventional pedagogy can however move someway to embrace the critique offered by APLC through for instance: demonstration or Exemplar project funding; third party evaluation and mandatory dissemination; the empowerment of participants; cultural awareness and cultural sensitivity; structural and infrastructural changes to encourage parent and family comfort; parents in classrooms; programs derived from local needs based on local consultation; a dedicated community liaison position; skill transfer and skill development; outreach to uninvolved parents; U3A - University of the Third Age courses; a focus on the home as well as the school, the dismantling of boundaries between school and community. Detailed discussion of these issues is far beyond the scope of this eBook. They do however demonstrate the validity of including the conventional status quo pedagogy within the perspective where possible - not to conventionalise the possible but to radicalise the conventional.

14 attributes of an this Alternative Pedagogical Learning Constellation (APLC)

Key attributes of this APLC include: (1) a hands on application, (2) lived life relevance (interfaced with other dimensions of ones lived life), (3) using mimetic methods while, (4) being mentored in order to, (5) design (PIDIL with horizontal and vertical skill sets), and (6) develop dexterity oriented - handy (both manual and mental), (7) in a contingency and (8) interface rich (i.e. the ability to make and learn from mistakes and engage in 'folly houses' so to speak) environment, (9) while facilitating the application of ones ingenuity through, (10) heterotechnic co-operative group work which, (11) is web linked etc. i.e. in

all (12) an exemplar project type dimension, where (13) thinking and doing braid and (14) subject and object remerge into a participatory consciousness. [NB: this is especially for those inc. boys who learn best through physical-emotional-development cp. girls who lean best through verbal-emotional-development]

Some links around this APLC - artificer learning (l), social teaching & l, natural l, informal l, lived life l, indigenous l, free-range l, discovery l, child-driven l, un-schooling l, intelligent narrative play l, adult and community l, l circles, l communities, androgogical l, emancipatory action l, futuring l

Expanding on the above APLC for Instance the Rock and Water program in the Netherlands [http://www.pco.com.au/boys2005/presenters.htm] with Freek Ykena's 'social teaching' or 'natural learning' (where the natural urge to learn and enquire is foundational for instance the way we acquire language or learn to walk), based on 'informal learning' (where 80% of on the job learning is informal learning), 'lived life learning' (where the curriculum comes from the lived life of each student), 'indigenous learning systems', even 'free-range learning' all are forms of 'un-schooling' (not not schooling just schooling differently to at present) and often the basis of 'home schooling' [http://hablog.beverleypaine.com/2006/03/embracing-natural-learning-philosophy.html] approaches, [http://www.engines4ed.org/hyperbook/nodes/NODE-1-pg.html cp. to conventional pedagogical 'driven learning'].

Freek Ykena is a Dutch educationalist, who has developed courses for children boys and girls also courses with a specific focus for boys on their way to manhood, as well as for the teachers who work with them [http://www.newcastle.edu.au/news/2006/10/rockandwater.html]. Even for instance to the point of recommending that a period of concentration say no more than 45mts is followed by 20mts minimum of physical activity. Ykena calls this 'natural learning' also called 'social learning'. Further this links strongly to Intelligent Narrative Play (see Chapter 13) which we use in our 25 managed child care centres and I use in my Adult Learning programs inc. community learning, and learning circles (@01-2008). Wildman and Schwencke (2003). Futuring learning then is learning by acting today ahead wisely by for instance building an exemplar project that can demonstrate a better world is possible tomorrow for our children's children and also for instance an exemplar project that can actually travel ahead or back in time in this regard - Dr. Who as a bushy/Artificer.

Readers Note: please note that many schooling systems to varying extents recognise the artificer perspective, systems such as Montessori, Steiner, Ananda Marga, integral naked and so forth. It is beyond the scope of this eBook to explore these somewhat diverse subsets of pedagogy so a few comments must suffice. First they often separate pedagogy and androgogy, second learning often relates to assembling and manipulating things found in the child's environment with out necessarily engaging dexterity or the four attributes of the Artificer developed in the grounded research for this eBook, thirdly they all have found their habitation with the totalising pedagogy of the State and thus fourthly all ultimately accept the etherealisation of the intellect as the end point of schooling thus representing a higher consciousness.

Indigenous Learning Systems
Indigenous learning systems as argued in this eBook need to build on the **Bush Mechanic style** approach with its deeper implications of the 'Interfaced Artificer' interfaced with the ceremonial, economic and spiritual dimensions that incorporate the artifice of ingenuity (urge to artifice) within the indigenous ontology.

Implications for Action Learning
Furthermore hand learning is different to action learning as hand as in handy is different to action in the sense that making (handy) is different to doing (acting). Acting then can be seen as doing something external and factual where as making is something dextrous that

exists at the very interface between inner and outer. This means a reinterpretation of the term 'action' in 'action learning'.

So where is this APLC going, and not going?

Certainly this is **not going** on a *back to the cave* type pedagogy or *history as destiny* approach to learning. This is also **not going** on an *anti-intellectual* practalise everything approach as this will founder on the deeper meanings and subtleties of the emergent global problematique. Rather it **is going** towards a macro historical perspective of *history as future*, seeking to identify a key even timeless or at least profoundly foundational, feature of what it is to be human, a feature with huge positive energy and contributions for our futures. Wildman (1996), Galtung and Inayatullah (1997). In this sense the Urge to Artifice may be seen as transcendently human and an urge that has been expunged from pedagogy.

Other implications have been explored in this eBook in relation to Vocational Education and so forth. Detailed recommendations on this in particular and in relation pedagogy in general are beyond the scope of this eBook and point to the possibility that this may well be a fertile field for further research.

Interface Facilitation, Integration and Synthesis

A. Interface Technologies also called Integration Technologies:[17] Although not immediately or even clearly visible integration/yin/soft technologies are emerging as the cutting edge in physical science eg. Neuroscience, military hardware, meat-data manipulation of data sets inc. informatics and web languages, environmental science. As discussed above very little of this knowledge has been applied in the social sphere. One area where interface is vital is in the broking industry e.g. financial, technical, marriage etc. broking.

Indeed authors such as Jin (2005:252) argue convincingly that lack of interface integration seriously inhibits economic development. Indeed the situation in China with 'silos' of Government bureaucracies controlling downward top to bottom and not allowing local interface between jurisdictions is very much the case in Australia also. For Jin this inhibits innovation as well as macro and regional economic development.

B. Interface Jockeys/Brokers: Such **interface brokers** can: (1) track their area over the long term, (2) are very familiar with the market's prospects and (3) are on top of the technical complexity of the technology, (4) know how to integrate it with other related technologies, (5) and who understand structural requirements (laws, management etc.) while (6) knowing how/who to choose appropriate experts to draw specific intelligence from, and above all (7) who in spite of all this inc. a customer not savvy in all the above, can <u>still</u> get into one shoe of the customer (empathy) and design a brokered package that best suits his or her needs over the next say 5 years. [with excessive retape (5) *interface* can quickly become *interference* and *broking* become *blocking*].

Socio-Technical Innovation

C: Social Innovation: Some would argue that hard technology is evolving at over 1million times the rate of organic evolution and I would then argue even organic evolution is faster than social innovation. In this light exemplar projects are urgently needed in the key social

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[17] A pedagogical category relevant though not identical to Artificer Learning is Heutagogy an advanced form of action learning (as indeed I trust Artificer Learning can and will ultimately be seen), which moves beyond conventional pedagogy and then extends androgogy with intentionality i.e. self-directed learning, although not at this stage embracing the exemplar project. Hase & Keynon (2000), Knowles (1970), and Kemmis & McTaggart (1988) refer. The topic is more fully explored in BMARPAuxiliary paper No. 4.

innovation arenas of governance, civic participation, intentional community living techniques, appropriate technology and techne's, recycling and so forth. Albery (1992)**.**

Media

D. TV Programs. There are other methods such as – the Bush Mechanic TV series from the ABC, Bushie type inventors/social innovators show – again similar to the ABC New Inventors show, publish lists of Artificer exemplar projects on the web or in hard copy Albery (1992), competitions such as Escape from Experiment Island or junkyard wars where, in both instances, teams of 5-7 folk compete using available materials + their ingenuity to conceptualise an idea, design, build and test it against a second team.

Education and Learning

Implications of ESD for conventional pedagogy

Full documentation and articulation of ESD is beyond the scope of this eBook and in effect, represents another eBook in itself. Originally it was expected that such articulation would comprise at least 20% of the finished product however it has emerged loud and clear during the research for this eBook that conventional pedagogy has become entrenched, as has education itself and science in general, in the trenchant separation and supremacy of thinking and over doing. So far from braiding thinking and doing pedagogy separates the two such that their reconnection of higher and vocational education, requires nothing short of a reformulation of the rationale for education itself which has become an important part of this eBook.

From a pedagogical transformation perspective the principal descriptors of such a reformulation of education would include**:**
(1) **Design -** Requirements for the course and the project inc. its curriculum priorities with input from stakeholders inc. community, students, 't'eachers and experts (instructional and content);
(2) **Development programs** - for faculty and students, respecting human rights and recognising as a human right the need for the 'critical, constructive and creative viz. creactive citizen';
(3) **Innovation** - specific training may well be required to develop innovation and creativity in design and implementation in students. At the very least, training is valuable in developing creativity in first-year students. Creativity is a skill that can be examined, used and taught--and it is one that is central to designing;
(4) **Philosophical validation** - in terms of the philosophical validation of the braiding of thinking and doing as well as the
(5) **Historical Validation -** in terms of historical valorisation of an engaged pedagogy viz. the Artificer;
(6) **Instructional Innovation** for instance research apprenticeships;
(7) **Capacitising** the emergence of models, simulations, micro-words, and proof of concept prototypes;
(8) **Systems approach** inc. development and **understanding of ESD** and eco-technecial considerations;
(9) **Understanding the Artificer** as praxisers of ESD inc. the four grounded principles thereof, inc. its extension to 'understanding the artificer as 'creactive' citizen in you ie the student/teacher/community etc.'
(10) **Emergent -** in the sense of prototype or exemplar as emergent or revealing and concretising of potential for a better world tomorrow moving into local theory building.

Implications of ESD and Artificer Learning for androgogy

E. Authentic Vocational and Community Education: That uses heterotechnic co-operation in choosing, designing and implementing practical tasks of benefit to the whole

community across all age groups. Wildman and Schwencke (2003). There is very little of this left in this day and age of symmetrotechnic co-operation and competency based education however echoes can still be found in some Workers Education Associations and Adult and Community Education.

F. Early Childhood Education: Here play, especially intelligent narrative play (fun!!), where a game content is integrated in the material for the day and then expanded to include other children is crucial again this is quite compatible with the heterotechnic co-operation of authentic ACE (see above point), so that kids and adults learning can have much incommon, e.g. www.kal.net.au

G. The Artificer Learning Style: Here we recognise that the Artificer is a form of intelligence and an actual learning style that blends left and right brain skills. Generally Western education obsesses about the former and deserts the latter.

H. Integrating these in Life Long Learning: LLL to me speaks not only to a form of adult learning rather ideally as a **vertically**, not horizontally, **integrated learning process** that combines for instance E, F and G above without the need for strict age cohort desert type pedagogical classifications of Year 11 or Grade 3 etc. e.g. indigenous and village learning systems (which incidentally almost universally respect hand knowledge). That is Kids and Adults Learning (thus the name of our company) yet the idea is nigh on impossible to achieve without massive resources as one has to circle the obsessive regulation and control of the educational system by Government which all but ensures innovations such as this stay well away.

I. From Competency Based Training to Project Based Learning
Here in recognition of the above points one can posit a (vocational) learning system that is synthesis outcome and thereby project driven. Such a project can be then linked to processes/pedagogy/androgogy/heutagogy design of an 'ideal' learning system, problematique urgency of the project etc.

Enterprise Formation

J. Enterprise start up time off: To expedite interface some countries such as South Korea exempt young people from military service, and allow University lecturers up to three years off to establish an enterprise. Artifice through the concept of 'techne' also blends personal and skill achievement which are both necessary for enterprise achievement. Underpinning this is the braiding of thinking and doing both vital for a successful enterprise.

K. Concessional venture start up loans: India is experimenting with low interest 'start up venture' loans to such start ups a kind of small end venture Artificer finance, while Japan has 'spare time development centres'.

A military analogue for the difference between tradesman, artisan and artificer

The difference between the infantry, commandos, and SAS is informative in regard to the distinction and similarities between tradesman, artisan and artificer. The basic technical qualification of tradesman may be applied to the average infantry soldier, the artisan as commando does his specific field of expertise particularly well and specialises in insert strike destroy and retreat, whereas the SAS solider operates in small self-sufficient bands of four to six soldiers (much smaller than commandos who operate in groups double this size and retain the conventional authority structure) and live off the land behind enemy lines and the group traditionally as a more egalitarian authority structure that doesn't report through the conventional hierarchy. Further this is as a group profoundly and expertly

multi-skilled to the point of being completely strategic not tactical and the group being able to operate for weeks or even months behind enemy lines conceives, designs and implements its own strategy.

In fact in many ways the SAS individually and as a group has to be able to operate as Artificers behind the lines so to speak, here the SAS is different to an insurgency or guerrilla group in that the SAS group penetrates deep into and remains self sufficient behind enemy lines rather operating within its own general social context as with insurgents or guerrillas. The artificer then is more akin to the SAS soldier than a commando or infantry soldier.[18] It is crucial to recognise the type and intensity of (1) training, (2) formal education and (3) peer leaning (heterotechnic co-operation) that such personnel are involved with. In many ways this type of program combines elements of the three learning paradigms.

In some military vocations, for instance currently in the British military, the word artificer denotes someone who has come up to a qualification through the ranks e.g. an engineering artificer, gunnery artificer etc rather than come down from a formal tertiary qualification such as a University engineering degree. Previously this was also the case in nursing. In other applications artificer can mean apprentice and still in others a judge as in 'artificer judge'. Its central more ancient meaning has been fragmented and all but lost.

720degree Learning

Designing an Artificer based course for 15 year old 'at risk' kids.

The following course outline was developed for a group of a dozen or so 14-15year olds in the Charlotte area of the US south east as a pilot in early 2007. The characteristics of Kids and Adults Learning (KAL) (720degree Learning) flow from the text of this e-book and are indicative and illustrative only and have not been, nor are they designed to be, developed in any exhaustive methodological or comprehensive manner, and include:

1. Inclusion of both heterotechnic (HTC) and symmetrotechnic (STC) co-operation (50-50)
2. HTC to be organised on a intergenerational KAL basis and include mentors, mimesis, contingency, ingenuity and dexterity (both manual and mental)
3. Learning to integrate thinking and doing capability arenas
4. Movement between would be based on capability based learning tests (capability =competency broadly defined to include lateral, synthetic and critical skills as well as instrumental behavioural skills, the latter being the present situation with competency based training + students values (including civics broadly defined)+experience+student self development(blending and separation of the I and the We))
5. Capability Levels (CL) would preclude the breaking up of education into temporally grade based year by year age cohort 'deserts'
6. Movement between CL's would be by capability assessment on say 10 study foci per level assessed independently such that a student could move between several CL's in one year and another student could take longer than one year to do one CL further a student could move between CL's for some criteria and not others so that final requirements would be for the achievement of a a certain mix of CL's.
7. Curriculum priorities to be developed participatively with all key partners having an equal say in the outcomes. For instance parents, community members, learning facilitators, as well as facilitated student input.

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[18] During the Vietnam War the Viet Cong collectively displayed many of these SAS/bush mechanic type characteristics.

8. Curriculum's themselves to be developed locally and collectively on a 50-50 basis
9. Curriculum to be based on the lived life of the student (see following section)
10. Learning Centres (LC) to be conceptualised broadly to include the home, community, lived life, child care centres, special ed. centres, learning facilitator development (teacher training) centres and the conventional 'school' (informal and formal)
11. Formal Learning Centres to be organised primarily on a HTC basis cp. the present STC basis
12. LC governance to be participative
13. Governance to be democratic, locally based on a district which is to be coterminous with Local Authority boundaries and generally the same as Government Regions which are in turn assembled from Statistical Geographical Units called collection districts.
14. Each LCRegion to have considerable autonomy for each school somewhat like a Local Government Authority i.e. to an extent modelled on the example of the University
15. Resourcing to be on a triennium basis and be comprehensive and include in cash, kind and care. Generally the key sources of cash to be Government, fees, community and business contributions, generally in a 60/30/10 basis however when care and kind are included the order would generally be in the vicinity of 30/50/20 and on this basis the chair of the LCRegion would not be a bureaucrat, learning facilitator or Government official.

Developing curriculum from the lived life – the visceral curriculum – grounded curriculum – the artificer in waiting curriculum

1. Start where the students are in their lived life – get something they like doing that is active in big momma e.g. sport, bike riding, snowboarding etc
2. Get them to spend half the time valuing and cherishing this (1) physicality of activity in the (2) environment – a forerunner to experiencing the singing tool
3. Grow from these direct visceral experiences their individual categories of/for understanding this experience – list individually then on a white board use post its in a form of consensus gathering/voting – many process method available here
4. Now discuss these categories in the group and identify meta categories that reach across all of the individual 'lived lives'
5. [As students move up the capability levels in the learning process and in order to render the learning process comprehensive some of these meta categories and their associated curriculum related questions and study tasks where necessary can be include especially those that cover areas not already included through the above process]
6. Apply these categories to the task at hand (a) a given task (horizontal synthesis) - downtown design/redevelopment (b) to identify tasks and select a specific task (upward synthesis)
7. Now the students are embedded in the course as co-learners in the second part of the course they become co-authors
8. Now apply these meta-categories as a lens with which to analyse the selected task subject to the required curriculum based questions to be addressed through task
9. Such tasks would not be community service whereby students work in community organisations (within their normal operations) i.e. doing without contributing much thinking rather such tasks would be more by way of action research even artificer research wherein thinking and doing would be braided even blended in the students contribution to the host organisation
10. Develop a suitable response/assignment paper etc. in relation to 7
11. As an addendum in process framing get students to swap their
12. Summarise and group presentation

NB: This course is designed for early teenage youth who may well be seen as 'at risk' of leaving the school system, and is based on a 'class' size of around a dozen over a period of around a semester that is 4-5mth course of one to two days per week, with at least 1/2the class contact time spent on dialogue, with several field experiences say based on that of their lived life – see 1 above]

Chapter 11 – Backgrounds and Links – exploring the rich historical heritage relating the Research Project with contemporary issues

Society as a humanist or economist project?

In an insightful observation Saul (2005:248) argues, that in relation to the rise of 'econocratic' globalism, the lens that is society with which we view the world changes from a humanist one to an economic one. He argues that from the early 1990's society there has been an increasing denial of society as a humanist project. He illustrates his point by referring to Rorty who lays the rise of econotechnocratic globalism at the emergence of the distrust of humanism and its cephalocentric *retreat from practice to theory* i.e. from doing to thinking.

In this climate of seeing society primarily through the prism of economics the humanist concept of citizen becomes replaced by terms such as – consumers, clients, residents, stakeholders and taxpayers. Saul (2005:248). Likewise many initiatives designed to assist people as (individual) citizens were replaced by initiatives inc. labour market ones that extended the technocratic reach of the market and its 'efficiency' to social programs which all now had to 'improve' Australia's international competitiveness and global participation.

Clearly in Saul's terms the challenge for post-post-modernism is to retake the humanist ground through an active citizenry. To re-establish the vision of society as a humanist project including normative and justice issues as indicated below and to reverse the trend identified by Rorty that is a retreat from practice into theory and to become involved collectively in the latter in what may be seen as including exemplar humanist projects.

Indeed the peak such project of an active and dynamic citizenry would need to express itself through practical (not theoretical and critical as with today's left) concern with issues such as (a) ongoing public discourse on the priorities for the public sector to address, (b) inclusiveness, (c) justice, human rights and transparent governance, (d) various forms of inclusion from co-operatives to sociocracy and beyond, and (e) practical locally relevant initiatives and innovations in citizen based community development and governance. Few of these issues, if any, are part of the globalist ethic.

Humanity as toolmaker – the emergence of mimetic epistemology as crucial in hominoid evolution

What does this means for today's humans? After some 200,000 years of hominoid evolution which, led to the transition from *Homo erectus* to *Homo sapiens* I argue that our learning abilities and creativity are still very deeply connected to our manual capacities. Indeed this transition is largely credited to manual dexterity in the hardware development of tool, and weapon, manufacture, as well as the soft systems technology that enabled their efficacious use.

It is only in the last 50 or so years that this direct link between mental and manual abilities has become fractured through technology. This fracturing may well be the result of the longer term epistemic separation of thinking and doing stretching back to ancient Greece. Just as today we argue for 'natural' diets we need to take this same admonishment to apply to learning viz. ennobling the learning link between thinking and doing through process.

Mimetics then are acts that embody a theory of knowledge, an epistemology, that manifests in intentional, representational acts (e.g. making a stone axe 1000000 years ago or an exemplar project today) that are not mythic (symbolic) or theoretic (abstract) but mimetic. Thus they are not just copying as in monkey see monkey do, but *copying with understanding* expressed in the ability to manipulate the elements of our physical environment to create meaningful actions and objects in our lives. For Wilson (1998:49) this is such mimesis involves the invention of intentional socially encoded representations and their articulation into reality. In schools, Wilson writes, children 'who are most successful, even virtuosos, at using their hands to build and fix complicated things in the everyday world around them' are often the same children doing very poorly on math tests.

Society as cephalocentric – reincorporating an overlooked mimetic epistemology

In cultures such as ours that dichotomize 'mind' and 'body' skew towards what Wilson (1998:60) calls a 'cephalocentric view of intelligence,' whereby the importance of this evolutionarily extraordinarily important hand-brain nexus is easily forgotten. As a result, we overvalue symbolic knowledge (the ability to manipulate words and numbers to describe or represent meaning in abstract theoretical linguistic symbols) while undervaluing 'bodily knowledge' or 'hand knowledge', or what Wilson (1998:48-60), calls mimetic knowledge which he severely differentiates from imitation because mimesis includes intentionality and understanding.

Wilson's book can be rough going at times-there are several fistfuls of descriptive 'symbolic knowledge' stuffed in there, from paleo-anthropology to biomechanics to philosophical musings on hand-oriented crafts such as juggling, rock climbing, and puppetry - but I highly recommend it to those of you who feel, as I do, *that your hands are quite literally the smartest things we own,* further he maintains *that the hand speaks to the brain just as surely as the brain speaks to the hand.* This can be seen in any discussion where people who have to put their hands behind their back simply can't communicate properly. From Wilson's *perspective gesticulation is part of epistem.* Certainly smarter than the stubborn brain that chooses to risk either ignoring or overworking them, seldom choosing to dance with them.

Further theoretical attributes of the Meta Methodology- Reflective Praxis

Methodologically the project is an action research one, in that Reflective Praxis and Artificer Learning is an adaptation, and Artificer Learning an extension of Action Research. See Wildman (1995). As such like Action Learning and Action Research they derive from a different pedagogy so to speak to conventional research methods which rely much more heavily on cognitive processes exclusively. That is a different understanding of how people learn.

Please note: the original concept of Artificer learning was developed in the period 2000-2002 separately to any reference or for that matter much knowledge of this so-called 'rich heritage'. Artificer learning as defined by this research project can, and perhaps should, exist quite happily largely separate to any historical imperatives.

In the following sections we seek to explore the origins of and overview some of the attributes of this 'engaged and embodied' action learning and action research type androgogy – from a time approximately pre. 400BC when in some parts of the world thinking and doing were not separated.

At least these following sections, I consider, demonstrate that engaged learning i.e. learning by doing i.e. braiding thinking and doing in a process stream now largely underground in the social sciences that has indeed a rich heritage and in some regards our position today is considerably devolved one compared to ancient lore.

On the origins of the 'Great Transition' between 'doing & thinking'

1. Pre History - origins and dimensions of the 'Great Transition'

Author's Note: The sections on Pre History, Wild Science, Artificers in the Middle Ages and the Esoteric Artificer are speculative and complementary to, not derivative generative of, the primary thesis of this e-book. [The concept of Artificer as used in this e-book arose as a grounded one and was developed, as detailed histographically in this e-book, independently by myself around mid 2002 as directly reflective of an 'ideal' learning process esp. for adults. It does not directly draw from these pre dating concepts as some sort of reconstructed neologism. Rather I strongly put to the reader these are a case of parallel processing and although temporally separated they all point to a path least travelled in globalised objectivist learning systems. By this I mean they all draw from, and move towards, the same source - that of how humans best learn to learn best. It is left to the reader to determine the ex post and ex ante lineage, and contemporary relevance, of the e-book's Artificer concept. This concept remains as ever provisional and at best 'through a glass darkly'. Many if not most of the authors sourced in these sections, and in the e-book in general, are far more intellectually and literarily competent than myself]

Philosophers and cultural ethnologists have called this schism (1) the **Great Divide** Turnbull (2003); (2) the **Great Reversal** by Campbell quoted in Taylor (2005:116), and the '**Great Domestication'** [Ingold (1993 var.)]; (3) the **Grand Dichotomy** [Goody (1977:ch8)]; (4) **the Fall** (Christian Bible 6000BCE); which is closely related historically and geographically to the (5) **fall from Paira-daeza** from which our word paradise is derived (Iranian) [Taylor (2005:104)]; and (6) **separated from the Tao** [Taylor (2005:106)];. In overview these transitions are between orality & literacy i.e. visuality and textuality. All of these terms are valid however in this e-book a somewhat more middle road term of '**Great Transition'** will be used.

These transitions all date to about 6000BCE+-2000yrs, i.e. around 8000 years ago.

Plato's Atlantis has many pre-fall characteristics [Taylor (2005:150) about 9000 yrs BCE]. The Great Turning to a dominator culture (6-5000BCE) Korten (2006) Eisler (1987). Generally these place the divide around the end of the last ice age (10-12,000BCE), still others at the boundary between the Neolithic and the Modern (8-10,000BCE), while others such as Taylor (2005) places the transition post Neolithic and even post agriculture yet at the boundary with advanced agriculture - intensive field cropping, seed storage, irrigation and at the confluence with the transition from orality to textuality. Goody (1977:144). (circa. 6000BCE).

This is not however materialism triumphant whereas all phenomena in the universe can be reduced to some cosmo-biological phenomena eventually becoming quasi materialist selfish gene so to speak Dawkins (1989). Rather it is the Uroboros the ancient symbol of the cosmos where the snake eats its tail where the two opposites are conjoined in harmony.

Three historical watersheds in the emergence of the Great Western Dualism - *I think therefore I am*

A possibly more valid term may well be 'The Great Transition' because the change from doing to thinking for instance itself took up to two millennia and did not happen uniformly throughout the world and indeed some folk never made the transition and live happily today. Goody (1977:146) for instance argues against the concept of 'The Grand Dichotomy' for the above reason however he does not dispute that a great transition

occurred just that it was a gradual rather than stochastic process and even today we still find shards of the 'old' in the 'new' both in our own 'western' cultures as well as surviving Neolithic cultures. Following this transition thinking has evolved to be less and less related to doing as it is now equated with data and then more recently with information and ultimately with digitised consciousness.

Further there are several watersheds for this transition, the **first watershed** which authors such as Taylor (2005) place the event in a geological time perspective of some say 6000 years ago, then the **second watershed** with the greatest recorded thinkers the planet has seen in Plato's heavens rim view of the ultimate achievement of man was to reflect on heavens rim listening to the gods discourse, as discussed elsewhere in this eBook and still **a third watershed** with Descartes and the emergence of the rationalists with science and technology cp. techneology, as we know it today in the Renaissance and the emergence of his 1644 dictum 'I think therefore I am' duality and then confirmed by the dark satanic mills of the Industrial Revolution 1650-1850 and today in the post WWII conventional organisation of tertiary and vocational education.

The re-absorption of the Dualisms re-enter the Uroboros: *I think ~ I do therefore I am*

The Uroboros, also spelled Ourorboros is an ancient symbol depicting a serpent or dragon swallowing its own tail and forming a circle. It has been used to represent many things over the ages including the eternity of time and the boundary of the universe and the transcendence of opposites and dualities, but it most generally symbolizes ideas of cyclicality, unity with infinity. The name Ouroboros (or, in Latinized form, uroborus) is Greek ουροβόρος, "tail-devourer". The depiction of the serpent is believed to have been inspired by the Milky Way, as some ancient texts refer to a serpent of light residing in the heavens.   The Uroboros can be found in Antiquity (Gooriala Rainbow serpent mythology of the Australian Aboriginals from Cape York - Wildman and Blomeley (1998)), Norse mythology, Gnosticism, Hermeticism (for instance in the Caduceus of Hermes), Christianity, Hinduism, some African religions, the Aztec religion, Kundalini, Chakras, DNA, in the flexive the mobius loop which points to the torus field in the Merkaba

Indeed Carl Jung refers it to as an archetype; it seems to makes its way into our conscious mind time and time again in varying forms. It represents the cyclical nature of things, eternal return, and other things perceived as cycles that begin anew as soon as they end. Here we have consciousness or noosphere represented by the head devouring the 'prima materia' or physiosphere of the universe for the prima material to be transformed into the head and devour itself, thinking devouring and re-linking with doing.

The noosphere and physiosphere, and sociosphere and biosphere here are in this regard, concentric with the latter incorporating the rest in a form of Uroboros. Thus the physiosphere extends and deepens Wilber's (1999: 184-193, 2000) view that it is through vision login that we embrace our future that is through a linking or re-embedding of the noosphere in the biosphere. Clearly the biosphere is the embedded in the physiosphere or 'prima materia' so that in a fulsome sense Wilber's vision logic requires this extension which also has the fortunate effect of re-valorising the Artificer whose art is the stitching together of the two - the thinking and doing - with sacred stitches made from sacred geometry and making the exemplar project. In the Ubroboros we can see the trinity of the enlightened consciousness/wisdom from an Artificers perspective of the ontological trinity in the re-linking the physiosphere and noosphere i.e. the practical wisdom of the Artificer and the self-sufficiency of the eNuffer (enough is enough) with the wisdom to act ahead wisely from the Elder. This Trinitarian concept is expanded in Figure 5 of Appendix F which draws from Ross Welch's (2008) work.

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The Milky Way Galaxy is the inspiration for the symbol of the Ouroboros. Myth refers to a serpent of light residing in the heavens. The Milky Way is this serpent, and viewed at galactic central point near Sagittarius, this serpent eats its own tail. The Milky Way galaxy keeps a great time cycle that ends in catastrophic change where in effect it devours itself. Further sometimes the Uroboros is shown with the Tree of life.

In some representations the serpent is shown as half light and half dark, echoing symbols such as the Yin Yang, which illustrates the dual nature of all things, but more importantly, that these opposites are not in conflict. The double Uroboros gives us the infinity symbol and also symbolises 'as above so below' with 'as within so without' the fractal/integral heuristic of the universe and the mobius strip. The 19th century German chemist named Kekule dreamed of a snake with its tail in its mouth one day after dosing off. He had been researching the molecular structure of benzene, and was at a stop point in his work until after waking up he interpreted the dream to mean that the structure was a closed carbon ring. This was the breakthrough he needed.

Intriguingly the dictionary meaning for the related word 'uberous' is fruitful; copious; abundant; plentiful and as a counterpoint today the term 'I think' means equivocation so that 'I think ~ I do' implies one is not sure of what one actually wants to do or believe. [Sources: inc. http://www.crystalinks.com/ouroboros.html & http://en.wikipedia.org/wiki/Ouroboros]

Possibly the **symbol of the Artificer** could be the Mobius Uroboros i.e. the Uroboros snake, doubled and in a mobius loop.

Raisons detre of the rationality behind the dualities of this Great Transition - the efficacy of the 'Taxonomy'

What then are some of the markers of this great split? It is my contention that at essence these markers delineate the doing | thinking split/duality. Dualities in this sense can be seen as having six raisons detre: (1) *Descriptive of reality* as it is e.g. yin | yang, green or brown as alive or dead in a tree; (2) *Dialectic* e.g. both needed to bring a third form into existence; (3) *Spectrum* e.g. intelligence as a spectrum within which people locate; (4) *Developmental* e.g. developing from old to new, through the one way arrow of 'progress' from ignorance to enlightenment, as in list of the following dualities; (5) *Oppositional* in the binary-logic of the 'either-or' sense, and (6) *Standardisational* - as an expression of binary logic dualistic especially as expressed in a taxonomy's columns is an expression of philosophers use of mutually exclusive categorisations as subsets of the Western penchant for universalising difference by removing it in taxonomy's viz. the columns are dualistic but the taxonomy itself is universal. Goody (1977:71).

It is these last two raisons detre that directly explicate the following dualisms. See also Woody (1977:40). Our modern epistemology of modernity used these as developmental (4) and oppositional (5) e.g. *either x OR y* , *guilty OR innocent*, *right OR wrong* with the latter representing modernity which historically has 'othered' the more 'primitive' duality which often tended to me more inclusive and focused to the initial or left side of the above OR, with the divide placed around 6000BCE. And then (6) to show who diversity fits into a 'universal' schema. These are the three raisons detre that validate the claims of science to be universal and thus something unique in Modernity. **NB1**: this discussion endorses the validity of dualities especially in instances (1), (2) & (3) above as vital to our epistemology, crucial to analytical discrimination and critical thought - we must take caution and not throw the baby out with the bathwater. **NB2:** in a taxonomy generally rows indicate formulaic relations and the columns analogous relations. **NB3:** one may well ask are the categories of the taxonomy those of the observer e.g. using binary logic or those of the observed field of study. Finally **NB4:** in this sense the taxonomy is more metaphor than mechanism, indeed a reversal of the conventional Western wisdom. Goody (1977:53, 73).

Attributes of the 'binary logic' of this Great Transition, the Great Divide, emergence of the Great Dualities

Now we apply (4) and (5) to the attributes of this Great Transition.
(1) from **doing to thinking,** i.e. (2) from **matter/body to mind** [The mind/body split implies a break with (Neolithic) nature the split emerges fully with Plato around 500BC]**,** i.e. (3) from **practice to theory** i.e. (4) from **performative to representational (jury and law)**[Turnbull (2003:12, 151)], i.e. (5) from **action to words,** i.e. (6) from **bricolage (artifice) to engineering** Turnbull (2003:151)], i.e. (7) from **crafty to scholarly** , i.e. (8) **mimetic representation to abstract representation**, i.e. (9) from **figure to fact**, i.e. (10) **particular to universal**, i.e. (11) from **provincial to urbane,** i.e. (12) from **magic to science** Turnbull (2003:151)], i.e. (13) from **savage to domesticated** [Turnbull (2003:151), cp. (71) below], Levi-Strauss (1966), Goody (1977)], i.e. (14) from **Neolithic to Modern** Turnbull (2003:151)], i.e. (15) from **primitive to advanced/modern** [Turnbull (2003:151)] , i.e. (16) from **the local to the global**, [within the master narrative of modernism the local is an oxymoron and the global is triumphalist, Turnbull: 2003:39)] i.e. (17) **case to category**, i.e. (18) from **function to form**, i.e. (19) from **traditional to scientific** [Turnbull (2003:148)], i.e. (20) from **mystic to scientific** [Goody (1977:37)]; i.e. (21) from **magic to science** , i.e. (22) from **closed to open** [Turnbull (2003:148)], i.e. (23**)** from **myth to history**, i.e. (24) from **a posteriori and a** priori knowledge spaces, i.e. (25) from **experiential to theoretical/analytical**, i.e. (26) from **situated to distanced**, i.e. (27) **from subjective to objective** [Turnbull (2003:151)], i.e. (28) from **perspectival to aperspectival** [Turnbull (2003:215)], i.e. (29) from **heuristic to algorithmic**, i.e. (30) from **fractal geometry to classical Euclidian (straight line) geometry**, i.e. (31) from **messy to tidy**, i.e. (32) from **heterogeneous to homogeneous,** i.e. (33) from **motley to uniform/consistent,** i.e. (34) from **diversity/polyversity to university**, i.e. (35) from **physiosphere to noosphere**, i.e. (36) from **mimesis** internal to lived life **to instruction** from external curriculum, i.e. (37) from **analogue to digital**, i.e. (38) from **experience to rationality** [Plato considered the latter much more important than the former], i.e. (39) **nature to rationality,** i.e. (40) from **culture to rationality,** i.e. (41) from **inner to outer**, i.e. (42) from **mutual aid to self help**, i.e. (43) from **earth to heaven**(s rim - Plato), i.e. (44) from **form to function**, i.e. (45) from **animality to humanity,** [Ingold (2000:48)], i.e. (46) from **execution to conception** [Ingold (2000:295)], i.e. (47) from **Neolithic to Modern**, i.e. (48) from **left to right (handed)** i.e. **right and left (brain),** i.e. (49) from **female to male**, i.e. (50) from **moon to sun**, i.e. (51), i.e. from **night to day**, i.e. (52) from **manual dexterity to cognitive acuity**, i.e. (53) from **physical to intellectual**, i.e. (54) from **social relations to technical relations,** i.e. (55) from **techneque to technique**, i.e. (56) from **man to machine**, i.e. (57) from **restoration to enlightenment,** i.e. (58) from **mythos to historia** [Goody (1977:14)], i.e. (59) from **pragmatic/instrumental to non-pragmatic/substantive** [Goody (1977:5)]; i.e. (60) from **mythopoetic to logico-empirical** [Goody (1977:2)]; i.e. (61) from knowledge **through the senses to knowledge through the mind** [Plotkin (1993:6)], i.e. (62) from **orality to textuality** [Goody (1977:144)], i.e. (63) from **doxa to logos** [Goody (1977:150)], i.e. (64) from folk/myth to science/theory, i.e. (65) from **tribal to bourgeois** [Goody (1977:166)], i.e. (66) from **faith to science**, i.e. (67) from **instinct to rationality** [Plotkin (1993:131)], i.e. (68) from **nature to man**, i.e. (69) from **actor to spectator**, i.e. (70) from *power with* to *power over***,** i.e. (71) from **sauvage to suave** [Ch 8, cp, (13) above], i.e. (72) from **mythomatical to mathematical** [Fig 3, Ch 11], i.e. (73) from **esoteric to exoteric**, i.e. (74) from **heterotechnic co-operation to symmetrotechnic co-operation** [Ch 9], i.e. (75) from **yin to yang**, i.e. from **earth mother goddess to sky king god**, i.e. (76) from **maternal to paternal**.

[**Readers Note:** indicate the Great Transitions of prime interest in this eBook - see also Ch 7: BMP2.f for explication of these prime transitions]

Historically over the past two and a half millennia these counterpoints have become dualities opposites and thus subject to Descartes either | or thinking. Here is where calls, including mine, come into play regarding the **re-braiding**, even **re-melding** of the above dualities - so the '**to**' can become '**and**'. A form of 'reintegralising' even 'resacralising' or 'reharmonising' or 'rehealing' the world.

How in all this with the totalising reality today of 'S'cience do we avoid being devoured in this 'bonfire of the dualities'? A bonfire where rapprochement between these sociologically evolved 'either or's' almost mutually exclusive epistems, does not produce Mad Max on one hand - terrorist localisms or Soylent Green - the triumph of the Science Macro-narrative, where in being divorced from peoples lives science re-produces their lives to be like itself much like in Soylent Green. One way is to seek to re-link these dualities. Calls for such a re-linking are like a silent partner in our culture there but whispered a sub-altern voice a disturbing challenge to the existing power structures.

Linguistic counterpoints of this 'Great Transition' or 'Great Reversal'

Plato's separation of mind and body, thinking and doing, anticipated the debasement of craft that has come to be one of the hallmarks of modernity. Ingold (2000:352). This reduction of technecal to technical to mechanical may be seen as an inevitable consequence of the isolation of the body as a natural or physical object, both from its own agency that puts it to work and from its environment in which it operates and from the mind of which it is an integral part and this is separation from its own agency, imagination and intention. Thus Plato's separation presaged the trivialisation then of 'muscular consciousness', visceral awareness and auditory attunement to task as part of craft and inturn the debasement of craft itself Ingold (2000:352).

This debasement can still be seen etymologically in for instance the reversals in word meanings. For instance: to the mid 1600's **artificial** meant full of techne, deep skill and art. More recently the **artefact** no longer is regarded as the original expression of tehne but rather as a cheap mechanical copy. Even more telling has been the removal from **craft** of any residual meaning of **art**, Ingold (2000:349-350) and thus the separation of **art** and **artisan** with the debasement, behaviourisation and mechanisation of the latter and the elevation of the former to intellectual luminary.

The urgent need to re-link doing and thinking

Philosophers who have thus argued include for instance: *Aristotle* - took the view that *human beings are mimetic beings*, feeling an urge to understand reality through the use poiesis as a sort of 'action as theory creation', *Hellenists* (323BC-30BC) - Active Practical Wisdom - an engaged humanist philosophy, a challenge to the disengaged philos of **Plato** where 'T'ruth is to be found contemplating beyond actions on heavens rim in dialogue with the Gods, *Epicurus* (341-270BC) **-** Human purpose is to strive for the good and enjoyable i.e. a lived life of worthy consequences (often extended to include pleasure this was not in the original meaning Ataraxia (Αταραξία) is a Greek term used by Pyrrho and Epicurus for freedom from worry or any other preoccupation, and for Epicurus was the first step to achieve Hêdonê, the pleasure.), *Seneca* (3BC-65AD) *The human being is born for mutual aid*, whereas anger is for destruction; the one wants to join together, the other to rend asunder, the one to help, the other to harm, the one to come to the aid of even strangers, the other to attack even those nearest and dearest; the one is ready to spend himself of the well-being of others, the other to plunge into danger, so long as it can drag others along. [Seneca (30AD approx: De Ira - 1.5.2)]; *Arendt* (1963) - from the age of Pericles (430BC) the men of action and the men of thought have been separated and the challenge of modernity is to re-ligo, or re-link, the two; *Nussbaum* (1994) - the therapy of desire explores the Hellenists esp. the Epicureans clearly desire is an engaged emotion - a brilliant piece of philosophy.

[**Readers Note:** Importantly today we find the West has abstracted thought towards the above Plato's heaven's rim so to speak and as such the exoteric has become abstract and non-organic i.e. ungrounded i.e. esoteric. Thinking has become rent asunder from doing - both vital for exoteric harmony. We have let this travesty of esotericism happen under or noses. The concept of esotericism used in this eBook is that of grounded consciousness (depth) this requires de rigueur grounding sky spirit and earth soul, and fractal integral 'as above so below', 'as within so without'.]

Social theoreticians have documented historically anthropologically and ethnographically such a divide include: as *Turnbull* (2003:55) - the modern over-emphasis of theory over practice; *Goody* (1977) who has done more than most to explicate this '**great divide**'; *Wilson* (1998:282-284) the separation of 'hand knowledge' and 'head knowledge' has caused the former to be effectively lost; *Levi-Strauss* (1966) - wild science from the savage/sauvage mind is a posteriori i.e. always moving from; *Ingold* (1993all) - the cruciality of manual dexterity (doing) with human evolution <u>which has created</u> (in this order) the unique human brain (thinking); *Dick* (1984), (2003) - the importance of using doing (action) in learning (action learning); *Taylor* (2005) - the fall about 6000 years ago when yin gave way to yang; *Wildman* (2005b) - linking thinking and doing while exploring the historical point of this separation in the context of the present obsession with 'cognitivity' as thinking and seeing doing as 'operational'. At the local level what kept the knowledge for instance of navigation, sustained was communication its constant synergistic lateral interface with other indigenous knowledge systems as well as the pre-eminent valuation of navigation as per providing sustenance for life viz. fish. Goody (1977), Turnbull (2003:151) and Ong (1982) argue this **Great Divide** can be explained by a higher order dichotomy that of **orality to literacy** or as I argue more directly explicative in the context of this e-book **visuality to textuality.**

Relatedly *Goody* (1977), *Ong* (1982) and *Turnbull* (2003) all acknowledge the transition and describe it as being between orality and literacy (textuality) as crucial primarily because textuality transforms oralcy in that no longer is oralcy a key attribute of a learned man, no longer are the accuracy and dependability of oral traditions important. On this basis I use the term visuality representing an expanded version of our contemporary understanding of oralcy to include the ability of ancient and near modern cultures to build co-operatively massively complex structures **without:** (1) slavery or exploiting the workers, (2) extorting from the surrounding community, (3) feudalism, (4) hierarchy, (5) architects, (6) plans, (7) Government standards, (8) structural mechanics, (9) continuity of management (there were 9 senior masons during the period of the construction) or even (10) a common measure, so the mason artisan and master mason artificer have emerged by the completion of Chartres Cathedral rebuilt between 1194 and 1230 after a disastrous fire. Indeed by its completion the master mason was becoming an architect rather than the other option artifitect (cp. architect) and plans were now accepted indeed de rigueur. Turnbull (2003:14, Chapt 2).

Women of the Hand - pre-fall maternal/nurtural orientation in humans

As indicated above authors Eisler (1987) and Taylor (2005) maintain that at the fall - in proto-European terms about 6000 years ago - the co-operator culture gave way to the dominator, yin gave way to yang, the earth goddess mother gave way to sky king god and so forth. Indeed many if not most of the transitions of the Great Transition where commenced. Pre-fall the hand knowledge was prime and hand knowledge viz. techne is nurturing. In this regard women were and are of the hand. Goleman's (quoted in Gardner (1983)) emotional intelligence (I-9), in terms of this eBook, is of the 'H'and and the Hand is the basis Artificer Intelligence (I-11). This is how the natural learning process starts for children and I argue should go in the formal education (both vocational and higher) process. (see Appendix 11 for further discussion of these various intelligences).

The Macrohistorical principal Great Transitions and timelines

Macrohistorically speaking (1) the principal effect of these transitions, especially in terms of this eBook resulted in the ==othering of: doing cp. thinking, women cp. men, power with cp. power over, orality cp. textuality, sauvage cp. suave, and subjective cp. objective.== (2) this transition occurred during the Neolithic age i.e. 10-6,000BC towards its end i.e. 8-6,000BC after the close of the last ice age i.e. around 10-8,000BC. The Neolithic Age heralded the beginnings of agriculture, pottery, craft and settlements, but before the emergence of text around 6-4,000BC.

The **Neolithic Period** is generally considered to end for any particular region with the introduction of metalworking, **writing,** or other developments of urban civilization, also called *New Stone Age*. Emergence of writing, and eventually printing, allowed the formalising of local knowledges and allowed the State to usurp these savage agencies within its remit by controlling communication between the now discrete components of its remit. Furthermore text at once provides this capacity for the emergence of the State in its present sovereign sense as well as providing tools for constructive rumination (as text allows a distancing from, remembrance of, an event not possible in orality/visuality).

2. From circle to straight line to mobius strip - reintegration of action and learning

In the west today even in traditions such as Action Learning, Experiential Learning, Transformational and Discovery Learning etc., action itself is not studied as an idea rather action is seen as an operation (this is a profoundly critical point), **action is seen as derivative not formative**. Action, let alone wise action, let alone acting ahead wisely in choice, is not even on the page and when it is it is only seen as an operational freeze frame. Noospheric trumps all. Many folk I know say they are 'into action' however they just see action as what I call 'A'ction in that it epistemologically is a discrete and derivate to thinking. This just reinforces the separation of 'action' and 'learning'. **So in this sense 'a'ction as defined here is an epistemological challenge to the conventional wisdom deriving from the Enlightenment.**

Consciousness, Wisdom and Learning are all conceptualised within the modernity project of the noosphere as ascendant into higher consciousness which even for Wilber and Cohen et. al. means in effect leaving the world the physical the mundane and becoming ethereal, simply action, in this sense of participation with nature and is embedded in being, is part of a more primitive world for Wilber et al and just drops off the page. **So in this sense 'a'ction as defined here is an ontological challenge to the conventional wisdom deriving from the Enlightenment.**

Readers of this e-book will need to engage the post first-enlightenment two step - that is the two-step movement whereby science i.e. rationality disengages from (1) nature then (2) culture, and replaces this with universal rationality and the scientific method. Ingold (2000:10). This two step process separates thinking and doing, as explored in this e-book. As a counterpoint please consider that for the vast majority e.g. 95% of our existence thinking and doing weren't separated and moreso they weren't even linked they were merged. Neolithic peoples in verdant environs, typically only had to 'work' 1/3rd of the week to generate sufficient food for self family and trade. For them **thinking and doing were not separate** (so they weren't linked), they were merged, intertwined and secondary (this is what I call 'a'ction). What was prime was perception, perception of the eternal now, of the Tao in every leaf and rock, of the far away noise or broken branch that indicated prey or an approaching storm.

From hylotheism to monotheism to holontheism - the urgent need to supervene to re-link or even re-merge thinking and doing

Their religion was **hylotheistic** (god, who remains separate), is in everything - any philosophical doctrine identifying a god or gods with matter - even the rocks were numinous with the collective spirit of God. Here 'action', 'learning' or 'I' are not discrete. They are all part of the eternal now, the ==eternal circle==. This is different to **pantheism** wherein everything is believed permeated by God pantheism - everything is god - god is not separate to what is), and **polytheism** (many gods). The west today is influenced by **monotheism** triplets - Judaism, Christianity, Islam where the 'G'od is discrete from, yet created the physiosphere which under the influence of mans intellect has become 'fallen'. And the now is an instant in an ==arrow's straight line== path towards greater progress and enlightenment. So in a sense any action therein is with tainted reality.

Ultimately, and this is only my speculation, these 'theisms' could for instance fold into a post-rational **holontheism**. Here everything is permeated by god and part of a larger whole - the separate god - till the whole thing becomes a giant ==mobius strip== and the one end rolls into the other end, and the inside to the outside fractally. This satisfies in a dynamic and even interactive manner Wilber's four quadrants and Berman's (1981) participatory consciousness. Here 'a'ction and 't'hinking are part of the same strip and continually merge and separate as the mobius strip flows in its 3D figure of 8, likewise with the other mind | body dualities of the Descartesian age. Operationally we become apprentices of, and in, the Tao or Zen or 'synergistic spirit-force'.

3. Pre Industrial Revolution - the Middle Ages to the Renaissance

Generally speaking the Renaissance occurred in the latter part of the Middle Ages (700AD-1650) i.e. from the 1300's in Italy and lasting to the beginning of the Industrial Revolution (1650-1850). Indeed most of the formalisation of the Apprenticeship system in Europe and in particular the UK, discussed as background to this e-book started in this period around 1000AD and was largely concluded well before the Industrial Revolution i.e. by the late Middle Ages, early Renaissance period the vocational training system in the UK and parts of Europe such as Germany was recognisable by today's standards..

There are, however clear antecedents to such forms of skilled embodied and mentored learning that can be found in the Code of Hammurabi of Babylonian (1800BC) times and even before that in tribal and indigenous systems of learning even the 'men's hut' now 'shed'. These origins are only identified for interest and space does not permit them to be further explored. Further reading can be found in the four background documents listed below.

In the Middle Ages governments had to contend with the exclusionary practices of various merchant and craft guilds, whose members could monopolise their trades in each town. Powerful guilds, for example, could levy high fees against outsiders to prevent them from entering a trade. Even apprenticeships could be restricted, with preference given to the sons of guild members or the sons of wealthy acquaintances. Governmental response to these tensions led, among public scrutiny and further regulations, to the Mason's regulations of 1356 and later to the Statute of Artificers 1563.

Mason's Regulations of 1356

Even earlier well in the Middle Ages in 1356 AD - *London Mason's Regulations* were enacted. This regulates the building trades of the period. It contains no mention of organised groups of workers i.e. it is pre guilds, but it does have the earliest records of apprenticeships in England.

The masons braiding of exoteric (mundane technical knowledge) and esoteric [19](spiritual knowledge) wisdoms played a major role in the design and construction of the great European, esp. English, cathedrals.

Further detail is presented below in the background documents esp. (Background Document) BD: I&II.

Statute of Artificers 1563

Responding to these improprieties, the English government sought to define the conditions of apprenticeship with the Statute of Artificers of 1563, which limited exclusionary practices and to ensure adequate labour, establish the ratio of masters to apprentices, set a fair wage for apprentices and regulate the power of the master and associated guilds.

The statute, passed some century before the commencement of the Industrial Revolution, among other things, formalised and regulated the apprenticeship system that had emerged from the London Mason's Regulations. Furthermore it did this in all the then trades or callings, not only those related to exoteric Masonry such as brick and stone work and later metal work[20].

Further detail is presented in the background documents listed below esp. BD: III.

Guildism as an ancient counterpoint to the march of Mercantilism to Capitalism and beyond to Globalism – exploring the potential the Rediscovering the Artificer as a contemporary Glocalism exemplar

Guildism through structures such as Guilds of Artificers were essentially pre corporate (18th to 21st C) and more so pre mercantilist (16th to 18th C) form of associationalism. Mercantilism, a European concept, promoted the Government regulation of a nation's economy for the purposes of augmenting state power at the expense of rival national powers. The term was given formal currency in Adam Smith's Wealth of Nations (1776)

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[19] A more ancient link may be found in the Green god Hermes (500BC+), and even more anciently as the Egyptian god Toth, who like the artificer was committed to his tasks – head, heart and heels – being the only Greek god having wings on each of these areas. An artificer needs commitment in each of these areas – head for understanding, heart for commitment and heels for technical capability i.e. to walk the head talk and outwork the commitment. NB: This footnote is expanded somewhat in Appendix D – The Ancient Artificer, Masonry and Alchemy

[20] In the mid 1850's we find blacksmiths employed as 'artificers' in the US civil war on both sides. As men joined the armies, it was soon discovered if they were skilled in blacksmithing. These men were typically given the job of artificer. The artificer most always stayed at the rank of private, but was paid extra wages each month in recognition of special skills and services to the military. This represents a historical continuation of the Medieval term yet with a somewhat narrowed meaning. Historically in military terms artificer esp. in the Navy, has meant an enlisted man responsible for the upkeep of small arms. Some armies e.g. military have retained and even invigorated the term artificer one can be and Apprentice Artificer, a Technician Artificer (who undertakes vocational and 'higher' education simultaneously etc. and an Artificer Sargent Major. [most Dungeon and Dragon type computer games have at least one type and often several levels of 'Artificer']

The pursuit of craft perfection is as old as our species and our myths are replete with stories that praise the skill and the wisdom of our master craftsmen. In ancient Greece, the master artificer was represented in the Icarus and Daedalus story. The lure and the danger of the pursuit of perfection are poignantly displayed in Icarus's fatal plunge into the Ionian Sea and in the ancient Persian custom, in which the master carpet maker would deliberately include one mistaken knot into an otherwise flawless creation. Whether in art, music, sports or business, the master craftsman in his or her pursuit of perfection continues to feature among our popular mythic hero figures.

In an intriguing aside separatist groups and intentional communities are often self cast as opposition to the artifice of modern society e.g. the Amish yet they in their inimitable manner they nevertheless seem to artificer and 'time freeze' an exemplar project of the Amish settlements or intentional community design.

and towards the end of the period sought the aggregation of merchants globally as an arm of National sovereignty.

Today 2/3rds of the world's largest economic entities are corporations not nation states. And these corporations are global and have the resonance of an emergent global country i.e. crown and country has become conflated in the corporate CEO. Global corporations are now not only legally individual humans but also increasing their own country of an amalgam of living individual humans/employees. So Globalism is in a sense mercantilism revisited as corporate mercantilism.

Guildism held that countries were comprised of guilds of individual artisans and that Parliament and the Guilds (sort of prototypical NGO's and citizen action groups) had a responsibility for the overall wealth of the common wealth, health and well being of society. Guilds were 'formally' built on the informal family artisan, into local guilds into parliament (bottom up). So at essence and in direct contrast with the coming behemoths of Mercantilism and capitalism, which are top down e.g. from the country/corporation to the people this was reverse – mutual aid not profit. Parliament was to serve the people through in part, formal recognition of the informal power structure of the guilds.

Moreso Guilds had at essence the artisan the master craftsman the artificer and thus enacted the ancient braiding of thinking and doing in ethical process even in some regards a most ancient episteme. Status here was in a sense based on ones ability to actually in reality and physically to use and develop your skills and apply then to assist yourself and others first. Guildism is based on skills with ones hands not head. Guildism is the antithesis of today's content less management. It led to the artificer learner and is the forerunner of the Mechanics Institute's of the late 1800's and early 1900's. It has now passed into history the remanent, however remains the 'Artificer' is one vestige of pre-corporate lifestyle well worth investigating. Here the artificer is the prototypical citizen activist.

There was in ancient times the 'navers' path of the journeyman spoken of in the next section this path taking many years would be followed by the recent tradesman called then journeyman and represented an international trek/journey often by foot over Europe of the time with key destinations associated with key skills needed to move to beyond master tradesman (employer of apprentices) to journeyman and then artisan and ultimately to artisan.[21] [The word 'journeyman' also derives from the French word *journée*, meaning the

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[21] The **Compagnons du Tour de France** are a French organization of craftsmen and artisans dating from the Middle Ages, but still active today. Their traditional technical education techniques include taking a tour, the *Tour de France* from the name, around France and being the apprentice of several competent masters. *Tour de France* simply refers to the fact that they are taking a tour around France; it is unrelated to the *Tour de France cycliste*, a cycling competition. The *compagnons* are all male. A similar tradition exists for German *Wandergesellen*, or journeymen.

Aspiring *compagnons* must first complete a two year course, which gives them the *Certificat d'Aptitude Professionelle*, the basic French trade qualification. They then go on a tour of France, staying in several towns/cities over the next three to five years, working under *compagnons*, to learn the trade. A typical day, for a *charpentier* (roof carpenter/framer) would involve a day on site, followed by technical drawing classes in the evening from about 6pm until 8pm. Dinner is eaten together in the *siège* (lodge) during which a tie must be worn. After dinner, the *aspirants* are expected to work on their *maquette* - a wooden model that they have conceived and created, first through drawings, and then using these drawings as a template, cut and assembled the wood. They will make a few of these throughout their time as itinerants, and each piece is expected to show that they have understood and mastered the most difficult aspects of the trade so far. Ultimately, it will be their masterpiece *maquette* that will be presented to the board of Compagnons at around the third or fourth year of the *aspirant's* tour, hoping that he will be admitted to the Compagnons.

period of one day; this refers to his right to charge a fee for each day's work - a day labourer. Further professional athletes are sometimes referred to as journeymen/journeypersons/compagnons (Fr)/intern.

This then in a small somewhat pre-rational naivety sense was a skills, not 'crown and country' or profit, based international order. This suggests a sort of nascent 'glocalism' a global or international (as navers are European in origin and other forms of engaged learning etc. were more well developed elsewhere e.g. Incas, China, India etc. Glocalism is bottom up Globalism.

Most see Guildism, if they see it at all, as a brief and irrelevant interregnum between Feudalism and Mercantilism. There are few to dispute this as indeed Guildism overlapped the two and critics could say even facilitated the emergence of protocapitalism. This research project however begs to submit another view, a tentative one none the less, one that suggests that one key reason for this 'invisibility' may indeed be that Guildism was and still is in its present form exoteric and esoteric, mutual aid oriented not elite oriented (a necessary and understandable reaction to the burden of the serf in Feudal times)

Mercantilism sought to subject its own people and indeed whole foreign countries as colonies supplying raw materials to the betterment of the elite of the colonising country or 'mother' nation as it was called. Yet it sought for its 'mother' country to maintain a favourable balance of trade. Although directly beneficial to the mother country this was not a position of mutual aid in relation to it colonies. This provided the favourable climate for the early development of capitalism with it promises of the end of mutual aid and/to allow the focus on profit. Consider this quote from the frontispiece from Saul's (2005) work on the collapse of globalism *'a law which prevents free trade is a law which interferes with the wisdom of the Divine Providence, and substitutes the law of wicked men for the law of nature.'* Richard Cobden – speech 1843. So clearly by the mid 1800's mutual aid was being seen as 'the law of wicked men' indeed evil and in counterbalance to Gods 'law of nature'.

Guildism on the other hand is a form of mutual aid. It is clear that by the early 1600's Guildism and Mercantilism were overlapping with the formalisation of the guilds, especially guilds of merchants, and their taking a national role. There was however a period of several hundred years from the mid 12th to late 15th centuries that Guildism held sway and indeed early Parliaments in Britain sought approval and sometimes guidance from the guilds for related legislation.

On admission, each new Compagnon is given his Compagnon name, which is made up from the region or town that he comes from in France and a personal attribute. For example, somebody from Burgundy who shows determination, might be called 'Bourgogne le Courageux'. They are also presented with a ceremonial walking staff (representing the itinerant nature of the organisation) and also a sash. This shares some similarities with Freemasonry, which may well have had much the same origins.[citation needed] Compagnons are also given secret words - the secrecy and the Compagnon name comes from the later medieval times, when the strengthening group of Compagnons (*Compagnonnage*), who were building the churches and chateaux of France was persecuted by the king and the Catholic Church, as they refused to live under the rules of either. During the Nazi Occupation of France in World War II, the Compagnons split into different factions; those supporting the collaborationist Vichy regime and those in the French Resistance. Many *sièges* burnt all their records in order that their details never be uncovered by the Nazis or the Vichy. The splits within the Compagnonnage remain bitterly held to this day. Source: Drawn from Wikipedia.

Today a feint echo of naving and journeymen can be found in the Willing Workers On Organic Farms movement, where travellers work for a period of weeks or months in exchange for board and keep. WWOOF'ing is especially relevant to back packers and although it does not contain an specific learning component there is a cultural exchange dimension and backpackers or knavers or WWOOF'ers become journeypersons travelling between farms for specific experiences. http://www.wwoof.com.au/

Guildism was a form of socially responsible mutual aid capitalism even private enterprise as guild comprised individual small business artificers and merchants. Saul (2005). As members they all had a clear commitment to the public good. It is reported that when one went to church there were guild members welcoming one (different for different guilds) and saying 'Giday Paul, lovely to see you, now have you given to the poor today?' In Guildism one, in the context of ones family, acted as a citizen business person within the whole in part of public good. All within the Medieval confines of nation states and intense local 'cathedral' economies in Europe and the UK.

This so called 'cathedral' economies were in today's parlance intentional community economies, based as they were on Religious orders with the cathedral the focus of the local community/city state as source of resources and mutual aid rather than slavery and other forms of formally compulsory labour. Not only this the cathedrals were first of class prototypes constructed as exemplar projects by artisans not slaves in a never before seen innovatory manner from an engineering perspective with flying buttresses and so forth. Here the link between artificer and architect can be clearly seen. Yet all the while connected to the welfare of the local people indeed there is some argument that the layout of the cathedral was reflected in the layout of the surrounding town – so that there is a direct link between European concepts of town planning and these ancient non military Cathedral Community Economies.

It is indeed heartening and yet disconcerting to find authors such as Saul (2005) identifying the artificer writ large as salve for today's 'multiplicitous' woes. Like almost all of the cognoscenti he spends hundreds of pages in cognitive and intellectual analysis of today disturbing world and finds it much as we have in this research project. However even a short review of his e-book shows he spends some 200 pages getting the final part 'Where are we going now?', not 'Next steps?' or '10 practical things you can do today to address Globalism', not even as an appendix. Although reasonable if a somewhat superficial analysis there is little if any synthesis. Saul seems to reach back into ancient history of the Middle Ages to find the guilds as a solution. His analysis of Globalism is sound his prescriptions are not. This is a common problem with the cognoscenti. A reanimated Nation State - that's it!!!! Positive Nationalism. Nevertheless Saul makes a profound point in his analysis that the artificer guild writ large has a role (but just what this role is not made clear) to play post globalism.

It is, I believe, reasonable to say that we need pragmatically and sociologically is a method to reanimate and renew the guild and the artificer. We need an operations manual a how to type process – how in fact to 'do' it. This is lacking even in outline in his book, not uncommon in books by the cognoscenti, and not to be mistaken as a major internal flaw which it isn't.

Artificer - from Path Least Travelled to emergent Glocalist Citizen Anew

Since the Middle Ages the separation of thinking and doing, and the mechanising of process till it becomes evanescent has become profoundly embedded in our very western systems of governance esp. law which venerates abstract thinking, reduces action to compliance and process to mechanism. Indeed artificing has become the path least travelled by children as they 'progress' through the 'education' system. Even more so today artificing has become an act of resistance as everything succumbs to 'the China price' and manufacturing and services move off shore to China and India respectively. Possibly this resistance and the rationale behind it may provide part of the energy towards the emergence of the Glocalist citizen of tomorrow. Perhaps this e-book may play a small role in such an emergence.

In some ways today Saul argues (2005:278) that we are entering an era resembling the Middle Ages. Here we start to see again:

- The difference between 'how to be an artisan' and how to do an artisans work' i.e. how to be a carpenter is a broader concept than how to do carpentry.   The artisan artificer learnt how to be as in human be'ing through vocation, rather than just being a technician who could manipulate tools
- Nation State borders were somewhat porus e.g. Europe, to the naver tradesman on his journey, usually on foot over several years, throughout Europe where different artisan skills were to be learnt at different stops on the way.
- Europe of the middle ages was a system of overlapping authority and multiple loyalties with **multidimensional and diverse interfaces** of simultaneous local and international, for all intents and purposes to our discussion international. Saul 2005:279. Here we have the idea of a rich but loosely coupled 'idea grande' of Europe championed by Erasmus in he European even glocalist renaissance.

Here the artisan provided an ability for extensional unity in an environment of intentional complexity even community.   This compares to today's globalism of clear hierarchical **non interfacing** linear structures everywhere we look.

What then is a nature of reality, & can this support the Bushy in concept &/or in reality?

The underlying question in regard to the above dualities is 'what is the nature of reality?' Is reality messy, contingent, fractal and hermeneutical? Or is reality tidy, premeditated, linear and empirical? This reality if it includes humans I would have to answer in the former and if it excludes humans, as scientific objectivity requires, I would answer in the latter. In this sense I have to argue that the Neolithic's got it right.

Nevertheless such a statement brings us into direct challenge to the modernity project with its concept of progress represented by the arrow of time with its 'objective' and increasing scientific understanding decoding of 'n'ature. Here we side-swipe the relativist | absolutist debates on the nature of scientific knowledge. A discussion of this is beyond the scope of this e-book however I can outline my and thereby possibly a contemporary artificer's, position in relation thereto, viz: Science knowledge:

1. **Is pragmatic and instrumental** in that it is performative in that it is the result of human actions and its result is to change the performance of human actions [for science nature can not be known directly but only as she is worked indeed sometimes 'tortured' to reveal her 'secrets']
2. **Is partial** as humanity is part of Nature and Nature is messy and science knowledge space is one of several valid overlapping knowledge spaces such as social and political and environmental. Anyone who has undertaken an exemplar project knows how messy messy can be.
3. Needs must consider the **Moral Philosophical** normative question 'what relations with nature are 'good' or desirable for our children's children considering the social situation of our communities i.e. moral i.e. about ends not just means i.e. whether the relations are efficaciously instrumental or 'T'rue or even probable.
4. Given the Global Problematique needs must demonstrate its **ability collectively to prioritise these global needs** and act efficaciously thereon through its research and projects in ways that are locally beneficent
5. Is a standpoint which thereby **is itself criticisable** even if only in terms of its own scientific method, in that as a standpoint it is not independent of its own belief system
6. Must of necessity for its own enviviation/growth and life avoid **taking its own traditions and methods of rationality and inquiry as absolute, frozen and immutable**

7. As one of several knowledge spaces needs must acknowledge that **it is messy** and actively constructed by its members and methods and thereby there is **no possibility of stepping aside from** the normative and performative processes **of the continuous interaction of our ideas and the world** nor of our **need to learn therefrom**

8. **Needs to celebrate this messiness** as creative indeed neg-entropic or we will, in the long run, condemn ourselves to an inevitable death brought on by a terminal hardening of our categories, by the inflexibility and entropic sterility of a monoculture long past its mutual-aid use by date.

How then do we live together?

It may be that at the end of the day the distillation of our concepts into what may be called 'Grand Exemplar Projects'(GEP)[22] may be able to be considered both as 'the ultimate messy'. And when one includes an all of human kind benefit clause in the GEP evolves to what may be called a **'Second Enlightenment' Exemplar Project** (SEEP) even without the belief in an absolute universal rationality or philosophy. It may be that such a project in lines with the artificer principles elucidated in this e-book may in part be possible. Thereby demonstrating that a third knowledge space, one that is performative and normative, one between the absolutist and the relativist, is possible, one that can fold in, and out of, the other two.

I hope so.

And if so then we could see some breathtaking second enlightenment exemplar projects. What a challenge.

Our unborn grandchildren call for nothing less.

Are we up to the challenge?

Background Documents: (1) Freemasonry, (2) Freeman, (3) Artificers, (4) Artisans, Guilds and the Journeyman's piece

These and other background briefings are provided in the four source documents for this research project. Going into substantial historical detail in this regard is beyond this project, nor am I a historian. In some instances the dates and terms between the various source documents are not in complete harmony. Basically the information in the following documents is drawn largely from the various sites (quoted) viz. the web, Encyclopaedia Britannica, other references and my own interest yet limited knowledge of this period and of apprenticeships in general. *Often the author of this information is not fully specified even in the background document i.e. the host organisation may be but the specific text author isn't.* In this sense, and in relation to these documents, I am not the author of these Background Documents merely the collator they are more a sort of 'wikipedia' http://en.wikipedia.org/wiki/Wikipedia public domain knowledge, a sort of encyclopaedia available to all that anyone can edit.

In explicating the concept of artificer and pointing to its rich history I do this in order to illustrate that certain aspects of the artificer or what one may call 'Artificer' have a long and venerable history. This does **not** mean however that my use of the term artificer is coterminous with ancient meanings nor is necessarily it in many ways comparable. These documents are illustrative of ancient links and artificers that indicate that the present

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[22] Examples of GEP's include landing a man on the moon in 1969, the Snowy Mountains Hydroelectricity Project in Australia, the New Deal in the US and so forth. An example of a SEEP would be for instance Communities Of The Future in the US http://www.communitiesofthefuture.org/

situation is vastly different to the time when thinking and doing were not so much separated and maybe just maybe this can show us that the future can be different to our present in this regard.

Today we face the global problematique and the collapse of international institutions of governance such as the UN and the dominance of governance by globalised non-democratic institutions such as the US, World Bank and IMF etc. In reality we face the realisation and the truth that today governance is little more than brute force dressed up in rules surrounding orchestrated lies pureed by spin doctors with doctorates in communication from Harvard. The walk is not the talk. The action belies the thinking.

In all this we need, I believe, now more urgently than ever, to respond to Arendt's challenge to re-braid thinking, doing and process i.e. abstract conception with the lived life[23] with human being. Thus we gain flashes of a Hellenistic therapeutic community. Nussbaum (1994:42). (To do this I maintain we need to undertake what I call 'futuring', also called 'artificing' or 'Artificering' i.e. proactively answering the question today of 'how then should we live together for a better world tomorrow for our children?' Towards this end we may consider embodied learning processes such as artificer learning, experiential learning, anticipatory action research, holonomic learning or Artificering. These can provide a very definite way forward in these turbulent and uncertain times.

So it is in the lens of the futurist rather than historicist that we now glance at the ancient artificer.

Further detail is presented below in the background documents esp. BD:IV.

Background Document No. I:
Freemasonry, Guilds and Apprenticeships in the Middle Ages (esp. 1300-1500's)
[Wildman P 04-2005 7000words]

Background Document II:
The Freeman Journeymen [Wildman P 04-2005 1600 words]

Background Document No. III:
Statute of Artificers (1563) [Wildman P 04-2005 1000 words]

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[23] Arendt's (1963:177) challenge of re-ligo thinking and doing on her acknowledgement harks from the schism between the two that occurred in the Greek age of Pericles some 430BC and is also is reminiscent of a contemporary challenge of around 300BC by the Hellenists [Epicureans, Skeptics and Stoics] to the followers of Plato (427-347BC)f, in that the latter viewed ethical truth to be out there – objective, external - 'on the rim of heaven looking in and discerning through thought the eternal truths and forms' and it is the role of politics to bring the conditions for the heavenly good life to be realised on earth – (by thinking) the ideal or noosphere. Whereas the former viewed the ethical life was to be found within (by doing) the lived reflective organic and political life, wherein politics has the role of attenuating such desire for heaven and problematising everyday issues such as consumption, ownership and expectations – possibly in today's terms 'real politique' of life in interaction with the physiosphere. Nussbaum (1994:23). Health, a modern metaphor for the good life, for Nussbaum (1994:19) does not have an existence up there, for instance in heaven where 'everything/suffering is for a (ethereal) reason – if we could but determine it', apart from the people and their lived lives.

Health then is not a pure being apart from a patients becoming, and the 'patient' is an individual physical social entity – human being; and 'becoming' is likewise. This, in my view, is the grand mal mistake of the new agers who see suffering inc. cancer as caused by the person for an ethereal reason – if we can but know it – its out there. Health/science/the good life/wisdom does not have an existence up there in heaven, totally apart from people and our lives. It is a constituent of the form of life of a living species; and it is to the form of life of the species, and the experiences in living it, that the doctor must look in constructing and norm and a remedy. Nussbaum (1994:20).

Background Document IV:
Historical link between Guilds, Artisan, Apprenticeship and Artificer inc. an explication of the Journeyman's Piece [Wildman P 04-2005 5000 words]

Key Observations from the Background Documents
These documents clearly indicate that artificing in several similar terms to that developed and used in this research project was securely in place in the English
speaking world in the Middle Ages indeed even before English as a currently recognisable language had arisen as it did by the early 1600's. The concept of global problematique and social holon however at this stage had not fully emerged. Moreover it shows the role and type of guilds and the semi legislative role they had in the overall governance of the country. Furthermore they show the importance of the agency of individual artisan in for instance building the great cathedrals where the artisan masons were individually respected and their work recognised indeed many individually signed the rocks they fashioned.

Ultimately this source of governencal role was seen as a challenge by early parliaments, which believed they had the monopoly on 'people's power'. Establishing this early link allows us to show that crucial aspects of the artificer/bush mechanic such as the interface between individual technical skills and the big picture, the role of personal integrity, agency and broader ethics, as well as linking to concepts of the greater good. These links were recognised 3/4ers of a millennia ago yet even more so than it is today.

This knowledge has come down to us today only as elements with most lost to history forever however two key reflections remain with us today: the Masonic (integrity, artisan and esoteric) link (from the 1300's and earlier) and the Workers Education Association link (emerging from the Industrial Revolutionary period 1650-1850). Having touched on the former we now review the latter link.

3. Industrial Revolution

The industrial revolution (1750-1850) was in effect constructed on the triumph of science over artifice of machines over craft, of objective knowledge space over subjective local knowledge space, of the global over the local of the urban over the provincial. This period was to prove the end of the road for the artisan and artificer and the community structures that supported them. In a sense the Industrial Revolution has not stopped what has happened is that it as a child of the science revolution of the century preceding it has grown up and now its logic is entering the technology of today as artificial intelligence. It is this process of osmotic absorption that I seek to challenge in this e-book. Subsequent so called 'revolutions' e.g. the Information Revolution (1970-2000), GNR Revolution (Genetics, Nanotechnology and Robots 2000+) are all solidly based on the technology and world views of the Industrial Revolution.

4. Post Industrial Revolution

The emergence of social conscience post Industrial Revolution – an outline of the Workers Education Association movement (WEA)

Visionary though he was, Albert Mansbridge in the UK could not have conceived how far his vision would reach when he advocated for what was to become WEA's starting in the late1800's. Ultimately he established 'An Association to promote the Higher Education of Working Men' in 1903, to be renamed the 'Workers Educational Association' in 1905. Today there is an International Federation of WEA's with Consultative status to UNESCO.

The WEA was established in Australia first in NSW in 1913 thanks to the Herculean effort of former carpenter David Stewart (WEA of NSW General Secretary from 1913 to 1954),

Peter Board (Director of Education in NSW) the University of Sydney and the NSW Trade Union Movement. Naturally Albert Mansbridge and Bishop Temple (later Archbishop) from England provided great support including a visit to Australia by the Temple in 1912 and Mansbridge in 1913.

In the early days, many attempts were made to pattern the WEA's work in Australia on that carried out in the UK. This primarily concentrated on three-year tutorial classes in which students frequently produced work of Honour's Degree standard echoing the journeyman's piece of centuries before in pre industrial revolutionary times. Courses focussed on political, social and economic subjects. Mastery of these, it was felt, was necessary for 'Workers' to fully participate as citizens in a democracy.

Today's Challenge for WEA
Nowadays this WEA challenge can be extended to education necessary for workforce'ers as citizens to understand and participate in democracy in the context of globalisatio and as artificer citizen in a globalising society. This renewed focus for WEA links strongly to Artificer Leaning. Technically the definition of workforce = workers + neworkers (part time workers) + nonworkers (unemployed, protirees, early retirees with hobbies, casual occupations + gworkers (gift/volunteer work, probono, community service etc.).

Typically in Australia, unions have only been interested in the former where as the latter (neworkers, nonworkers and gworkers) categories now comprise some 40% of the workforce and as yet remain unrecognised by the Unions or Government. Artificers are to be found in these latter groups.

In undertaking this research I contacted some 20 WEA's around the world, with little result. Contacts and the letter sent are listed in Appendix A. Although now generally locked into the formal Vocational Education System with its focus on competency based and accredited training, the WEA seems to be struggling to have some relevance to its ancient call and keep funding today. There are still some elements of the ancient artificer at least in the intent if not the realisation.

Post Globalisation – competency based training – linking Taylorism and Skinnerism - Faustian Feast

Nowadays such ancient wisdoms as we discuss here have been disaggregated and analysed and codified into thousands of individual and generally autonomous 'competencies'. Each trade consists of thousands of such competencies. Each is to be measured by 'behaviour' (note: behaviour as in stimulus response not as in understanding interfaces, big pictures, deeper wisdom or citizen responsibilities). Such behaviour is to be manifested three times correctly and the person is then accredited as 'competent' in that particular skill. The learning process, called Competency Based Training (CBT) is now called 'training' and occurs generally in Australia in Colleges of Technical and Further Education (TAFE). As I understand it from a TAFE teacher making a cocktail has 14 such competencies.

It is as though Taylorism from the early 1900's, 4/5ths of a century before CBT, was breathing its last gasp in the early 1960's early 1970's as the limitations and reductio ad absurdum of endless division of labour and skill segments meant the human worker now had lost touch with the whole project and acts of industrial sabotage in reverse even ludditeism emerged, enter Volvo, worker less factories and the like in response thereto. By the late 1980's under the dual impacts of globalisation and technologisation, however Taylorism passed into what at first glance appears as the least likely host – the humble apprentice, and in so doing all but destroyed what was remaining of the artificer.

Enter operant conditioning and Skinner who in the 1950's was advocating the concept of competence in sense of behaviour only stimulus-response where there is no mediation between stimulus and response by human consciousness and or normative deliberation. He advocated a utopia based on behavioural engineering in terms of an elaborate Skinner box in which the right lever must be pressed/behaviour manifested by the human animal in the box to gain reward or avoid punishment.

Any serious approach to answering the question 'how then should we live today for a better world tomorrow for our children?' needs must engage these issues i.e. that of division of task to humanly manageable proportions and eliciting and rewarding the most propitious behaviour possible. For instance in our society we spend much time and effort 'pinching people for what they did wrong yesterday, and not rewarding them/us for what we will do right tomorrow.' Collectively we analyse the past rather than seeking to synthesise the future. The issue here is that division of labour, behaviourism, competency based training all have their positive side however when administered through bureaucracy (hierarchy+regimentation+control) which it itself exists on the basis of analysis in terms of hierarchy, regimentation and control we simply pour petrol on the fire. No where in this mix is synthesis and innovation, so we end up with a social straight jacket where any expression of agency brings out the social system's antibodies.

Under the guise of social justice the advocates of these approaches remonstrate with emergent synthetic system of for instance employment development using the small scale and informal sector such as Local Employment Initiatives (LEI's) and the more ancient systems of vocational education. Training has become essentially textual (as has indeed most tertiary education) or behavioural (as in vocational education). In this sense both forms of education loose out the former is impractical and the latter lacks understanding or synthesis.

I should know for at this time (late 80's early 90's) I was Deputy Commissioner for Training in Queensland (as well as Director of Employment). During this period I participated in several interstate committees establishing Apprenticeship statistics, oversaw the introduction of traineeships in Queensland and participated in the CBT debate. In all there was a staff of 120 in 20 locations throughout Queensland with an operating budge of $3m and a field discretionary budget of some $10mpa.

Here in Australia CBT has, over the past decade and a-half, continued to gather bureaucratic strength and support and simultaneously employed thousands of public servants and consumed untold millions of taxpayers dollars, effectively ensuring that HRD play's hand maiden to globalisation. Such an approach to training does the same to product as CBT does to training except that today it has become largely machines which do the production. And perhaps more importantly the approach continues the obscuring of more informal community activity e.g. the emergence of the chaordic commons and more collective approaches to developing skills and capability. Initiatives such as Local Employment Initiatives which, emerged roughly parallel to CBT, were however by the mid 90's thoroughly eclipsed throughout Australia by the CBT approach to technical skill development. NAGLEI 1987a, b, c; Wildman and Schwencke (2003), see also Appendix B.

. Australian Training Reform Agenda - a recipe for disaster

Over the past decade and a half **Vocational Education in Australia has under the (positivist, reductionist, centralist and behaviourist) nationalised rubric of the National Training Reform Agenda become massively institutionalised, minutely internally specialised, oppressively hierarchical, unabashedly reductionist and behaviourist, and innovatively dead,** a tragedy of lost opportunities and wasted millions.

Any one of these three mini disasters is enough to derail any initiative. For example now training unlike tertiary studies which remains University specific, has become totally nationalised with national committees controlling every aspect of the curriculum (both content and process) in absolute minutiae such that innovatory training programmes aimed at emergent niches are no longer possible training is only possible from extant on the shelf training courses. I have had personal and professional experience of this in the small business arena.

Such initiatives embodying as they do the mutualist spirit e.g. ACE (Adult and Community Education) have had to go underground wherein they are hounded to this day to the death by the agents of the formal training bureaucracy which decry's any training that is not officially 'structured', exorbitant public liability insurance rates, huge compliance costs, draconian police state administration systems, oppressive regulation to the point where Registered Training Organisations in their training contract with the State Governments are required to sign off on a clause that prevents them criticising the State Government training agenda, multi government confusion (Commonwealth Government pays employers incentives to train apprentices and trainees while the State Governments administer apprenticeships and traineeships), hugely bloated bureaucracies and centralised national control of training offerings and packages. Little if any room is left for innovation and post formal systems for the first time in Australia's history have to go completely below the radar adopting almost a bush mechanic style approach - the CBT writ large has triumphed? As Deputy Commissioner for Training in Queensland for several years in the early 1990's I saw these issues first hand, and they are one important reason I moved on.

Its like the modernity project, realising its use by date was fast approaching, went into overdrive to try to find a host, as more holistic and technologised production systems moved the project on from the actual manufacturing process. And find it it did – in CBT we have along with public bureaucracies and their associated governance systems of command and control a relic of the industrial revolution that continues to spread its canker in the creativity of future generations through the schooling, training and regulatory systems. In its wake the only system of social organisation more dated than CBT is of course (curse sic!) public bureaucracy.

CBT then represents in its Tayloristic intent the late modernity some of the hopes of the Artificer and yet in its operationalisation its anthesis and ultimately its demise.

A call to Alternatives

Likewise the decline in social respectability of trades it the eyes of prospective apprentices, the lure of plug and play computer games that can be bought and played literally within minutes (not years as for an apprenticeship) all point to a bleak recruiting future for apprenticeships which tragically in many ways remain conceptually at least the background material for the historical and ancient artisan and to an extent the artificer.

All this explicates the extraordinary labour shortage in Australia today. Shortages of tradesmen and apprentices with some trades attracting hourly costs of $120 generating an annual income of some $0.25maud (cp. $0.0025maud i.e. $2,500maudpa in Indonesia)[24]. These huge incomes would indicate the vocations as a positive destination for young Australians but yet they stay away in droves. I argue that in this sense the vocational education system in Australia has largely failed the youth and now to a point and typically blames them for the mess. [25]

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[24] See Appendix B for a detailed cost comparison of manufacturing in Australia and Indonesia
[25] Situation 2004/5 Australia as observed, recorded and reflected on by myself in discussion with Richard Mochelle, Evan Hadkins, Helen Schwencke, Bob Dick and others.

Let alone the much deeper and broader deleterious impact that such labour costs have on our manufacturing base and international competitiveness where as indicated in Appendix B for instance the cost of a tradesman type skill level in Indonesia is, on the basis of the above figures and those in Appendix A less than 5% that in Australia, the difference is even more marked with China. And this is before differences in compliance costs, public liability insurance and contiguous market size are included which drop this cost to around 1%. And we rush into FTA's at breakneck speed.

As indicated above in today's world of instant gratification of plug and play computer 'games' the idea of working hard at something physically demanding for years and years just doesn't cut it any more with most of the youth of today. Furthermore as the combined impacts of this trend with consumerist generated dependency on imported goods, globalisation with its access to extremely low cost and highly sophisticated labour, CBT (with its high costs and corrosive impacts on skills), coupled with the on-going collapse in Australia's manufacturing base it seems that the intake of apprentices and trainees will keep heading south apace. It may well be that apprentices and apprenticeships are like canaries in the mine the first harbingers of an overheating and shallowing economy one that will run out of puff over the next 5-10 years.

The intense economic, social and skill costs of such bureaucratised forms of training have led to the increasing call for alternatives. For instance with the:
- Economic, social and skill deficits in such training now becoming more apparent and less deniable
- Ever decreasing numbers of youth volunteering for such dumbing down
- Ever increasing cost of skilled labour and its negative impact on Australia's economic position
- Ongoing reduction in agency required for the tradesperson
- Focus on ever smaller components of a skill area with little or no interface training
- Ever increasing intrusiveness of the State in the training relationship leading to the decreasing support from employers coupled with
- Worker less factories

Is it any wonder fewer employers are training (in Australia) and many fewer youth are volunteering for apprenticeships and Australia is importing 100000 skilled tradespersons from China, all this, as indicated above, support the call for alternatives.

Alternatives to the conventional educational system in the vocational and parts of the tertiary education systems

Developing alternatives to the present training fiasco will need attention being directed to the following aspects:
- Serious review, and even abolition, of the now hopelessly bureaucratised training system is urgently required
- Along with the reintroduction of a training levy type HRD instrument.
- On the job training programs are also vital and yet have been largely abolished. Training organisations intrusions into employer's workplaces to be redressed also
- Ability to incorporate may attributes of the bushie into the voc ed system such as interface and career progression as an artisan eg apprentice to tradie through tradesperson's piece to master tradie to artisan to artificer with progression recognised through involvement in concept and design work and to an extent higher wages
- Recognition that skill development occur in employing organisations not TAFE colleges and that such organisations exist in industries and communities that host and support such industriousness so community economic development and local

employment initiatives are a crucial support for such restructuring of the training process
- Move away from globalisation and FTA's to a more New Zealand type position of economic self sufficiency with internationally competitive wage rates and industry policy – this will be painful with a decade of suffering yet it can play a key role in preventing Austrian turning into a third world nation for our grand children

A Glimmer of Hope through the artificer

A response to many of these design aspects can be seen in the artificer/bushie. It is almost impossible though for the author to see how this can be recognised in the existing climate to any significant extent, in anything but the informal sector. So in this sense it is only a glimmer of hope – yet a glimmer it is.

What do our Digger, Drover, Swaggie and Bushie have in common?

Who will be our Diggers, Drovers, Swaggies and Bushies of the future? Well if one were to advertise for same[26], I suspect, there would be very few takers.

So this e-book argues that artificer learning, however, can to a point can provide just such an alternative for a minority, but nevertheless a hopefully significant one, of would be bushies – our diggers of the future. Many of the characteristics we admire about the 'typical' Australian character or digger/drover/swagman in our vernacular, characteristics such as ingenuity in the face of adversity, fairness, mutuality, agency, a certain level of dismissiveness of authority, larrikinism and hard good quality work all directly apply to our beloved bushie. We have, however largely lost the supportive social, cultural, economic environments for the traditional swagman to re-emerge as more than an aside.

Artificer Learning - transforming Praxis

Linking 'math' and 'myth' are illustrated in the following figure in the footnote.
Figure 3: Myth and Math a Dialectical Equivalence

A. In Prehistoric Philosophy: Neolithic (10000-4000BCE) - a key descriptor here is the 'praxis' of melding what we call today thinking and doing or math and myth, with strong sexual symbolism implying a close connection between fertility and funerary rites. This celebration of the cycle of birth, life and death was a central part of Neolithic philosophy which in turn is consistent with the symbolism found in megalithic passage graves of the for instance the Stonehenge era and period. We conclude that these rites at were intended to understand and bring a harmony between the cycles of the sky and rhythms of the earth and thereby to bring life to the dead and good fortune to the living.

One of the defining characteristics of the archaic is that it was pre-textual. So there are no conventional written records of philosophical positions etc. This however is somewhat of a moot point as there are cave paintings in France, circular inscriptions in Australia and the UK and so forth that may well represent some genealogical records. Globally at this point some say 6000years ago there could well have been a global population of humans of no more than several millions - unbelievably sparse and contingent. Our forbears were very much in the minority and often on the menu of the various predatory animals, subject to the challenges of the lifestyle and so forth. Their philosophy simply put had to work - thinking and doing had to go hand in hand.

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[26] In all these instances male and female are included. This book takes the view that all are examples of oikonomia and oikonomia involves male and female. Oikonomia means home economics in the sense of the ancient Greek meaning of prudential household/community management through the production and distribution of 'real' goods and services for the support of everyday life inc. domestic and home management arts. Here we have the origins of Community Economy Development (CED) [Incidentally Aristotle 400BC contrasted this with chrematistics – love money in identifying two types of economics]

B. In Western Philosophy: By the time of Plato and Aristotle, in (circa.) 500 BC (2500yrsBCE), thinking and doing have been forever rent asunder. Modernity has massively increased this distinction. Aristotle identified praxis as one of five types of knowledge:

1. Theoria knowledge – academic/theoretical knowledge – **thinking** in the noosphere[27];

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[27] The Greeks also had another set of terms that relate to, yet remain somewhat separate to the poieo family – that of epistem (theoretical knowledge) and techne (experienced based knowledge). As Heidegger suggests, (1) 'not praxis but poiesis may enable us to confront the essential unfolding of technology.' (2) 'that techne belongs to bringing-forth, to poiesis; it is something poetic.'
[http://plato.stanford.edu/entries/episteme-techne/]

The excellence of the *theoretikos bios*, we are told, depends largely upon a distinction between actions that have as their end 'to change' and actions that have as their end 'to know.' The goal of the practical life is to become good. Thus, the end of the practical life is to change ourselves, the goal of techne and *poiesis* is to change some matter external to ourselves. The difference between the practical and the productive, then, is to be found in the objects that are altered. For *poiesis*, the thing that is altered is external to the agent. The goal is to make an excellent 'object.' The reason why *praxis* is superior to *poiesis*, for Aristotle, is to be found in the distinction between two types of agency. For *poiesis*, the agency of the craftsman brings order to an object that is 'external' to the craftsman. For *praxis*, the *phronimos* is self-ordering-the agent orders *himself*. In both cases, though, the goal is to alter or change: either oneself or some 'material' external to oneself. Both activities are 'for something,' that is, they are what we might call 'interested' activities insofar as each respective activity attempts to 'alter' its subject matter to achieve some desirable end.
[http://examinedlifejournal.com/articles/template.php?shorttitle=platonicanthropology&authorid=50]

For Aristotle the excellence of *theoria*, though, is distinct from, and superior to, both *praxis* and *poiesis*, is that *theoria* is disinterested and directly useless. For *theoria* there is no desire to affect any change, or to produce anything. Rather, Pythagoras tells us, it is to 'behold,' to 'gaze,' to 'marvel' or today we may say to 'conceptualise'. It is no accident that there is an intimate etymological relationship between the type of 'beholding' (*theorein*) of the spectator at the games, and the marvelling (thaumazein) that is the beginning of philosophy. Essentially *theorein* is not the participant where as *praxis* and *poiesis* are that in different arenas. For Aristotle, then, *eudaimonia* corresponds to a noble disinterestedness, uselessness, ultimately, *eleutheria* or the 'divine life' (one may hesitate to translate this as 'freedom' because of the many poor connotations that our usage of this word denotes). One of the most profound expressions of this in Aristotle comes at *NE* X, viii, 1178b8-1178b32. And, the *demonstration* of the excellence of intelligence as something both 'free' and 'divine' is painstakingly executed in *Metaphysics* XII (see especially 1172b1-15). The connection between excellence and *uselessness* or *disinterestedness* is a profound theme in Greek philosophy. And, one might argue, it represents the most conspicuous difference between this expression of antiquity and modernity.
[http://examinedlifejournal.com/articles/template.php?shorttitle=platonicanthropology&authorid=50]

Plato like Aristotle before him sees theoria as supremely superior to doing something external. Here the **philosopher** is a *basileos* (King) because he **is not an imitator** (the poet's art is governed by *mimesis*, and *mimesis* is 'slavish imitation' [on this see *Republic* X, 597e; *Nicomachean Ethics* IV, iii, 1124b25-1125a2]). Wilson (1998) however maintains that learning manual dexterity by mimesis is not slavish mimicking but copying with understanding.

Both Aristotle and Plato then continue the thrust of Socrates Thus, Socrates tells us in the Apology that he would rather die than cease his questioning, for, *ho de anexetastos bios ou biotos anthropo* (the unexamined/unreflective leisure based life is not worth living for man). The divine life, then, is the *bios theoretikos*, and human beings must cultivate this life as far as possible in order to be truly happy (*eudaimonia*) and blessed (*makarios*). It is significant that the Greek word for leisure (*skolé*) does not necessarily imply inactivity, or 'rest,' but rather having the requisite freedom for *learned discussion, disputation, and lecture*. It is a distinct activity (*entelecheia* and energeia), not inactivity. In short, it can imply the freedom to be part of a community of learning-thus it can also mean a 'school.'

Although Eastern religions do not use the word *Logos* because their sacred texts and practitioners do not use the Greek language, there are ideas with varying degrees of similarity to the philosophical and Christian uses. Two concepts with some parallels to *Logos* are Tao and dharma, and another from Hindu cosmology is the concept of Aum. In New Age mysticism, the Odic force is sometimes described as 'the physical manifestation of the creative Logos.'

Logos was used by Heraclitus, one of the more eminent Pre-Socratic Greek philosophers, to describe human knowledge and the inherent order in the universe, a background to the essential change which characterizes day-to-day life. *Logos* as the inherent rationality (cosmic principle) of the universe is also something of a precursor to the concept of the collective unconscious, described by Carl Jung. By the time of Socrates, Plato, and Aristotle, *logos* was the term used to describe the faculty of human reason and the knowledge men had of the world and of each other. The Stoics understood Logos as the animating power of the universe. Logos (being and thinking - scientific study) then is the macro etymological system within which terms such as praxis (being and doing something) and poiesis (being and making - shaping something) are nested.

It is *poiesis* then, knowing by making, as contrasted with *theoria*, knowing by observing, and praxis, knowing by taking action, that is the principal focus of this book however the vernacular knows praxis yet not yet poiesis so the term praxis is used herein in the context of poiesis. Yet both theoria <u>and</u> poiesis are necessary for the creative act of discovering the truth. This process is both an act of (disinterested/ spectator) justice and (participatory/actor) art an act of love in so far as one acknowledges that it is an inextricable interweaving of receptivity and spontaneity. Some would argue that poiesis (often associated with art) may be seen as an 'escape' or 'emancipation' from theoria. Here poiesis can be related to narrative to story telling to illustrating through drawing or other forms of construction as with the Bush Mechanic, as illustrated in the following diagram. If one considers the Bush Mechanic primarily the way of art as participator then the Bush Mechanics path is the RHS of the following diagram.

Figure 3: Myth And Math (Theory): A Dialectic Equivalence
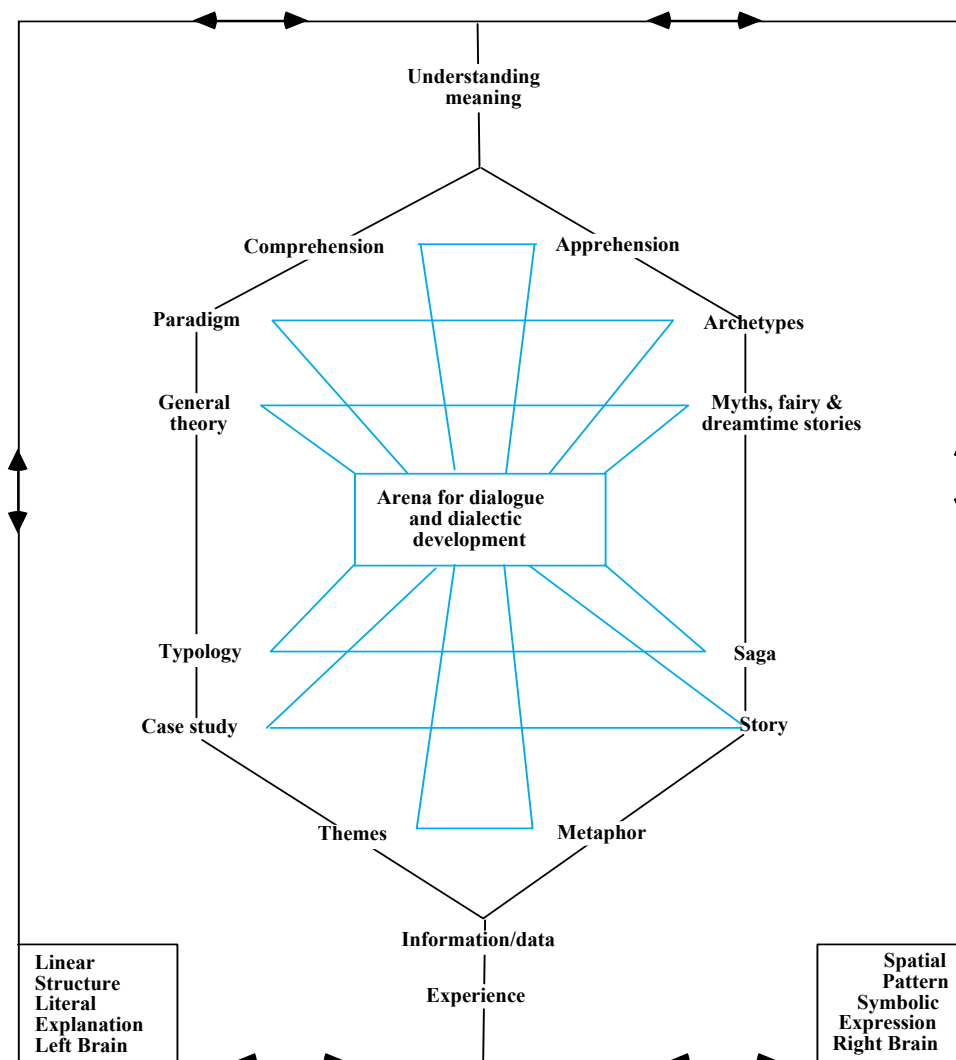
Source: Wildman and Inayutallah (1996)

In short the Ancients did not see that 'doing stuff', such as acting, making, goods production etc., was of a lower order (from a philosophical deliberation perspective). Such a pejorative dichotonomy seems to have emerged in parts over the millennia from around 500BC, and was still not fully in place at the building of the Chartres cathedral by 1300AD. Indeed the Ancients and particularly the Indigents (Indigenous cultures) had

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2. Practike knowledge - **practical knowing** - doing - linking to techne. Although oriented more towards 'praxis' this in many ways has come down to us as the conventional 'practical' (worldly knowledge) a counterpoint of 'theoretical' (classroom/academic knowledge).
3. Poietal knowledge - producing – **forming and making** and therefore designing - i.e. artificing something in the physiosphere interfaced with the noosphere e.g. poem, work of art, building, prototyping, designing (and thus interpreting) etc. and application of hermeneutics, more after poietis the Artificer shaping or poiesising (creating) the exemplar project - the poiema[7], also linked to techne (experienced based practice);
4. Praxis knowledge – **doing** - action and learning there from in the physiosphere, not directly associated with bringing forth;
5. Poetic knowledge – **imaginal - imagining**.

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and have a strong commitment to myth and artifice indeed one may describe it as a dialectical equivalence. Campbell (1972), (1974), (1978). Systems theory, e.g. Jantsch (1957) in his work on Cultural Design, also sees it as lower order in the nested decision hierarchy (but not necessarily of less importance). That is doing stuff is questioned (viz. what stuff? Why do it? Why invest scarce resources in it? What aspect of the Global Problematique are you addressing thus? etc.) from higher order normative frameworks.

These classical philosophers developed in terms of their practical lessons for, and coaching attempts on, political leaders and students, methods to help them then and us today, avoid akrasia (moral incontinence) by addressing moral dilemmas with moral reasoning and mental practices their/our potentially misleading desires, passions and destructive emotions, eg, anger, greed, revenge, eye for an eye type of rationale. A kind of conceptual learning and integrity development program for the mentally healthy along the path of parrhessia (open discourse) which respects phronesis (practical wisdom) aiming at Prohairesis (choosing ahead wisely) leading to both Poiesis (making and shaping) anew and Theoria (disinterested understanding). I argue that the contemporary era could learn much from their work.

In my view, however, what the Ancients did not adequately recognise is just as there are 'ways of thinking' there are 'ways of acting'. So that once the 'right' decision has been made for the good of the demos by the politicians the issue of 'right action' needs to be considered and thus 'right action' becomes the key imperative in this the second phase of the enactment cycle. So thinking remains superior to doing/acting and separated therefrom. For me this is a profound and ultimately tragically catastrophic perspective in the minds and philos of these great ancient men. Possibly the doing was automatically thought to be hierarchical, military style often using 'appropriated' people who weren't considered 'people' i.e. immigrant workers or slaves. In short the question answered itself in the tradition of the status quo of society of the time. A possible reason though hardly an excuse.

Nevertheless the slaves didn't do everything, as there was a valued craftsman class, for example. Ultimately this is the class that gave us the artisan cathedral builder of the middle ages and the associated cathedral town wherein in Europe small relatively autonomous towns without slavery co-operatively build the icon of the middle ages the great cathedral almost the 'cathedral economy' a forerunner of the 'community economy' or polis of artificers. Yet even in ancient times the craftsman's work was considered lower level compared to politics and philosophy which was concerned with the conditions for the greater good of all. Perhaps, because, similar to today, the skilled shipbuilders and the great mass of producers did not have this concern as a primary or even secondary focus, they were looked down upon as lower level functionaries. There seemed not so much only as a split between action/non-action, but as today, more a lack of holonic balance among most people between concern/political action for the lives of all on one hand, and self-absorbing business/profit/hobby concern/actions on the other i.e. 'either and'. The existing political culture, education system and governance and production structure perpetuates and entrenches this of course.

My view (consistent with priaction ethics – establishing action priorities prior to action, and in prioritised action, developed by Mochelle 2001)) is that the moral imperative properly considered would govern and largely determine the decision as to 'the why/what/how of the action' respectively yet holonically.

Today we continue to suffer from this structural lacuna. In turn history and our futures generations finds us able to identify yet unable to address this miasma. What I have sought to outline in this book are ways, concepts, and occupations where this separation is not yet catastrophic, areas where innovation from the ground up is still possible, where innovation can be dissent. The Bush Mechanic is one such occupation.

[some authors add another form of knowledge not necessarily identified by Aristotle that of 6 *Gnosis* knowledge – knowing by direct apprehension of the truth, while still others separate 7 *Techne* as a separate form of knowledge]

Of all the above terms the two that survive to this day are 1&4 with an inordinate preponderance on 1. Artifice, on first glance, seems most closely related to praxis yet, on reflection, praxis is more about doing than making or prototyping with dexterity. Here 'doing' can be as 'doing a behaviour' whereas 'forming and making' is actually 'shaping and designing and producing'. So I argue that through the concept of manual dexterity in Artificer Learning links most strongly to the long forgotten mimetic epistem of Poietal knowledge i.e. poietis, and to a lesser extent praxis so No's. 2, 3. NB: the term Praxis, extended as in this paragraph however is used in this e-book as it is part of the vernacular, however praxis today more readily fits the conventional concept of vocational education, so the more correct term however is not *praxis* but rather *poietis*. [28]

Reflective Praxis - Artificing viz. Alienation

A key, possibly the key, descriptor for today's world is the term 'alienation' based on the isolation of one person from the outcomes of their own labour then from one another then from the community, and ultimately from ourself. This, in its most basic sense, is strongly expressed through reductionism expressed in the division of labour. This research report argues that such separations and alienations are the result of appropriation of interfaces ultimately between thinking and doing. The elimination of such an interface removes social validity of the Artificer. This appropriation has logically generated a society of dependent consumers cp. for instance to our parents and their prosumerism (producing what they consume) especially during the great depression of the 1930's.

A way of redressing these separations as Galtung (2004) calls them is through ownership of our own praxis for instance in this project through reflective praxis. A specific form of praxis that the author has encountered and sought to praxis is herein referred to as artificing also called bush mechanic. Artificing allows us to generate integrative demonstration or exemplar projects. It is the main research subject of this e-book in terms of the application of grounded theory to field recorded learning insights I have compiled over a two year period while engaged with several so called bush mechanics.

Although the issue of interface is emergent within the specific grounded theory application and is reported on in detail therein, it has immediately obvious broader theoretical links to concepts such as anomie and alienation and social fragmentation exist. On this basis the theoretical discussion thereof has been included in the overview section of the e-book and the detail as to interface wherein some sixteen types of interface are identified are discussed in the results section of the grounded theory section.

It is critical however to indicate that in doing this I do not seek to give atavistic, proactive or reactive validation to the overarching philosophical concept of Artificer/Bush Mechanic learner rather to illustrate the fit between the two. **The primary focus of this research project report is the grounded theory categories.** Links to broader theoretical categories such as alienation are to an extent speculative and somewhat hypothetical.

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[28] Reference is made here to a related, yet separate, concept of (auto)poiesis i.e. of self regulation and self creation. The Greek verb poieo (I make or create), gave rise to **3 words: poietis** (the one who creates – inventor/innovator/bush mechanic), **poiesis** (the act of creation or formation – the innovation process based on the four principle of the Bush Mechanic), and **poiema** (the thing created n- exemplar project). From these we get three English words: poet (the creator), poesy (the act of creation/shaping/forming) and poem (the created). A poet is therefore one who creates, and poetry is what the poet creates. The underlying concept of the poet as maker or creator is not uncommon. For example, in Anglo-Saxon a poet is a scop (shaper or maker) and in Scots makar. So in ancient Anglo-Saxon an artificer is a scoper and in Galic makar.

Some key references on Reflective Praxis

Wildman, P. (1993), (1997) *Communities Working and Learning: An explication of the philosophical, epistemological and methodological underpinnings of a community economic development process that seeks to enhance sustainable local employment and training opportunities by linking local economic development and community development through action learning and action research.* 1993, International Management Centres (1993) and Southern Cross University (1997).300pgs

Wildman, P. (1995). Research by Looking Backwards: Reflective Praxis as an Action Research Model. *Action Research Case Studies Newsletter (ARCS.)* (published by - ALARPM, Prosperity Press and Interchange), *3*(1), 20-47.

Wildman, P. and L. Cundy, (2002) The Esoteric Thesis: Making inner sense of the ineffability of knowledge obtained during the exoteric research process. *ALAR Journal (Action Learning and Action Research*), **7**(2): p. 3-21.

Interface appropriation as necessary separations and alienation in late capitalism

This line of thinking maintains that in not separating a person from their work one is reducing anomie collectively and alienation individually. For peace activist and macro-historian Johan Galtung this separation is part of the larger disintegration of the West – these separations of people from each other, from nature, from social support networks, from their citizenship into categories of learned and regulated helplessness. This analysis extends separation from the works of their/our own hands and from 'the other' into an ultimate and possibly the most tragic separation of each of us from ourselves selves.

These separations into programmable responsive categories are critical for consumer society, like everything else in this throwaway society. For Galtung we are moving from nomadism to monadism – from tribal wanderings to aggregations autonomous self-sufficient 'separated' consumer individuals. These separations are all eliminations of interface dimensions of alienation which may be seen as a gap in interface or a one way interface or an interface with nothing and so forth. Galtung (2004:91)

Other concepts related to alienation for instance include the analytical fragmentation of tasks, knowledge frames, labour, skills and authority in processes such as bureaucratism behaviourism, reductionism, economic atomisation, utility maximisation, division of labour and so forth. Such a framework is expressed generally within large military-corporate-industrial-governencal complexes operationalised through bureaucracies and maintained by regulation through the public sector enforcement bureaucracies. Tragically in today's world economic rationalism rules and using such an approach to the mundane science of the 'production and distribution of goods and services for ordinary human life' contains the seeds of much of these separations.

Economism, Interface and Profit – the commodification of interface

Economism reigns today in the west. Indeed Galtung argues that one may as well call economics captitalistics and within this knowledge frame Governments control separations through rules and regulations in favour of such capitalistics which seek to interface people with consumer product rather than with their own products. When this occurs 'corpor'n'ations' are able to control interface and thus can control synthesations of new products.

In this sense it can be argued that one way of looking at or deconstructing corpor'n'ations is that they are interface appropriators and managers and Governments appropriate often

previously informal interfaces esp. where communities produce a proportion of their own consumption products as prosumers, and formalise this interface which is then proscribed with regulations and licensing in favour of the aforesaid corpornations. This interface[29] then becomes a commodity and is appropriated by various corpornations and used to generate profit and returns to shareholders.

-(2003:168) incorporates prosumers as experience generators and consumers into economic theory as a third form of economic outcome - (1) goods (designed and made by others to you), (2) services (delivered by others to you), (3) experiences (designed made and experienced by you - to varying extents). Related concepts include active recreation and experiential tourism, even broadly some aspects of the DIY movement where the journey - experience and learning - are as important as the destination - new deck for instance, though the prime area for increase over the 30 year period to the mid 1990's has been in the active sports category rather than hobbies for instance. Florida (2003: Table 10.1). Clearly Artificer Learning fits into this 'creactivity' view of economic activity at least at the 'authentic non-generaica' end of the spectrum.

The Western Epistem - Thinking 'Othering' Doing

The separation of thinking and doing that is a pre-requisite to generating the interface between them is endemic in Western culture. Some would argue since the age of Pericles some 400BC. Arendt (1963, 1995, 2003), Wildman (2005b).

I argue that the gulf, indeed the lacunae, between the two is so profound that when combined with the focus on thinking as prime concern in academia and schools, we have in reality 'othered' doing. Doing has become a reality outside, and secondary to, our primary cognitive focus and thus outside the focus of our Western consciousness. Indeed the ancient Greeks such as Aristotle and Plato revered 'thinking' and 'contemplation' as something fit for the philosopher king as it allowed one to approach the 'idea' through 'pure thoughts' and eschewed 'action' or 'doing' as something fit for slaves.

Authors such as Arendt (1963) have argued that the religo i.e. the relinking of thinking and doing is the challenge even task of modernity. Today we remain with the 'othered' of doing – thinking is prime and is locked in its ascendant position by the complicit conflation of technocracy of University, bureaucracy, social regulation within a high tech social surveillance system.

Thus the Australian culture has in effect turned against its diggers its true believers and with the combined impact of CBT, education training and tertiary systems have tended to 'other' the bushie pushing him further and further into the periphery into the informal even non status quo even non legal arenas. Thus in this e-book Artificer is used literally and metaphorically the former is self evident and in the latter sense Artificer refers to those whose technical/exemplar project synthetic skills are on the outer of mainstream. Others such as Galtung and Inayatullah refer to these othered as Bedouin even in a sense becoming 'othered' along with indigenous compatriot 'Artificers'. At least the latter group have a host positive culture for their skills.

See - http://www.bushmechanics.com/pages/bush_mecanics/body_bm.htm
http://www.abc.net.au/message/archive/bushmechanic/
www.hotfutures.net.au/bushie

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[29] *interface* represents a key grounded theory category that emerged from the grounded theory research project the major focus of this report. The term corpornations is used in recognition that the majority of the top 300 economic entities on earth today are corporations not nations – corporations are our new form of nations – in effect 'corpornations'.

[Further historical analysis of the Western embeddedness of the separation of thinking and doing is provided in Appendix K]

Artificing's response to Alienation viz. the Commodification of Interface via. The Division of Labour

Artificing seeks to reverse this commodification of interface and places such within the auspice of the exemplar of braiding thinking and doing – the Artificer. This is division of labour with which economists have been so enamoured with since Adam Smith – though his thoughts were at least in some respect recognition of the artisan. In the big picture take on all this I have argued that we have the appropriation of synthesis (and synthesis requires interface) by power structures such as corpornations and the maintenance of learned helplessness via. regulated separations by corporate capitals increasingly captive nation state.

The bushie as the Green Knight using Appropriate Technology who ultimately transforms into the Barefoot Philosopher

Artificers are the '(a)lone ranger' of appropriate technology. Appropriate as in efficacious. See http://www.icat.org.au/org/aboutcat.asp . The appropriate technology metaphor of the Artificer is someone fixing something with fencing wire is really about applying ones ingenuity to the task at hand in ways that redefine the task as capable of local solution using locally available resources.

Any serious look at sustainability or green issues in general quickly leads one to see the need for appropriate read prosumer or even alternative technology. See http://www.eco-portal.com/Sustainability/Solutions/Appropriate_Technology/welcome.asp Here the Artificer becomes a sort of sustainability green knight able to develop alternatives solutions to everyday problems.

Appropriate Technology (AT) was 'big' in the 60's and 70's and usually still locates around physical technology e.g. solar power, bio-loos, permaculture, electric cars and so forth. AT continues to struggle with the conceptual leap required to see social systems as technology and thus stays somewhat locked into a quasi scientific and severely socially limited world view. Furthermore the concept of AT is more a means not an end i.e. use green technology and yet doesn't force one to say what it is being used for i.e. what is the end of the application i.e. what exemplar project will come out of the application i.e. in what way does the answer of AT respond to the question of 'how then should we live together today towards a better world tomorrow for our children?' That is how is AT part of the social holon? Answer – it isn't.

Yet the promise and even intent was there the realisation generally is not. There may well be some link however to the Post-Post-Modern (PPM) Burning Man phenomena [http://en.wikipedia.org/wiki/Burning_Man] which has currently seen the 2007 them Man as the Green Man with many of the attributes of the Green Knight. (see PPM section below).

Expanding Artificer to Barefoot Philosopher to Zen and the Artifice of Ingenuity

Extending by broadening and deepening this AT focus somewhat we have the concept of bush or barefoot (as distinct from witch) doctors etc, and ultimately barefoot philosophers – the bushie as a barefoot philosopher expounding on an demonstrating the meanings of life

so to speak in response to the question 'how then should we live together?' through a combination of improvisation and innovation.

Clearly such a normative question is futures directed and requires an idea of the global problematique and ideas of we i.e. participation as well as together as in communitas or corporatas for instance and of course the eternal conundrum 'live' with its esoteric and exoteric dimensions thus 'live' has most abstract and concrete dimensions co-existing simultaneously. Certainly Artificers can assist with the latter.

At this point we arrive at a Max-Neef's idea of the barefoot economist or Freire's idea of conscientisation – profoundly liberating appropriate technologies – the barefoot teacher. [Max-Neef (1987) see also http://www.rainforestinfo.org.au/background/maxneef.htm ; Freire (1972), also barefoot architecture http://www.ecopolis.com.au/theory/machine.html Paul Downton on Urban Ecology].

Yet at this point we are also in danger of a sort of social technocratic response [7] of seeing technology and scientific knowledge still as something apart something that only requires the possessors of this thinking to join the people in the doing and we can all live in the city of joy. This is a far call from Artificers which seeks to spread such agency generally and to braid thinking and doing into embodied being for a better world for out children. In this sense one can see Artificering (and other broadly related barefoot practitioners[30]) as an outcome of Zen and the art of Ingenuity.

On the basis of these situations this e-book does not directly use the term Appropriate Technology and although Barefoot Philosopher is considered appropriate it is a call too far for most Artificers and even 99% of folk generally and so is also not used directly in this report.

The efficacy of the Artificer approach in various operating environments

Cynefin Institute a creative research institute into organisational development established and run by Dave Snowden. The institute grew out of a similarly titled institute which he helped form in IBM. See http://www.cynefin.net/ . Below we explore the Cynefin approach in identifying two axes and thus four operating environments are as per:

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[30] Some small caution should be exercised here as the concept of 'barefoot' practitioners can mean and expert among the people seeking to empower them viz. City of Joy, whereas bush mechanic never left the village however notwithstanding this difference there are many similarities between the concepts.

Figure 4: Four operating environment systems

Patternisation

Q3 Complex   Q2 Complicated

Indeterminate   Determinate

Q4 Chaotic   Q1 Simple

None
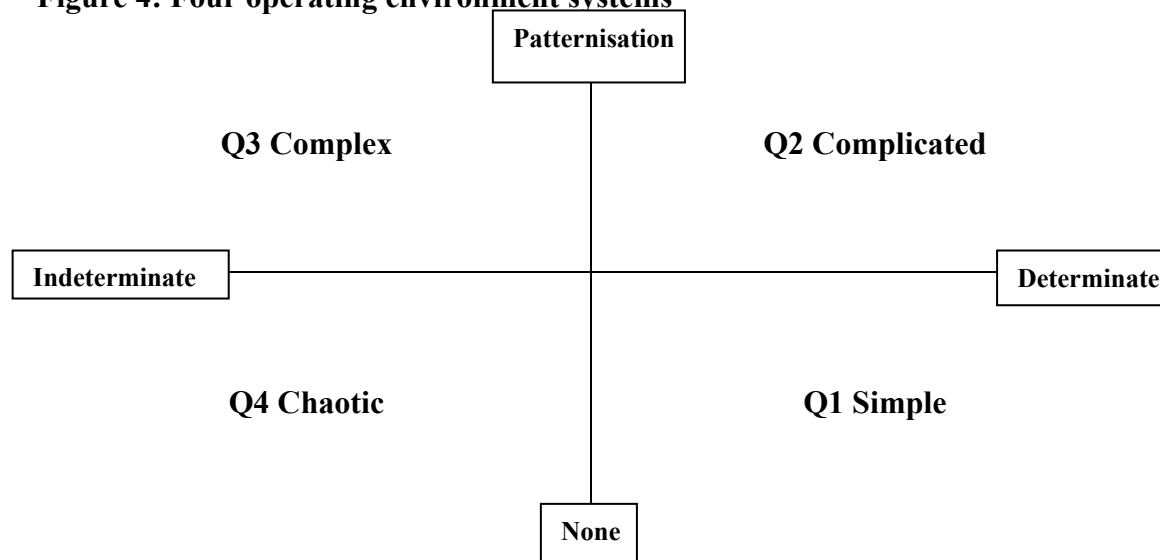
Source: Drawn by Paul Wildman, from work by Bob Dick based on work by Dave Snowden's at the Cynefin Institute 06-05

Determinate environment
Q1 *Simple* - cause-effect linear & sequential;
Action =sense-categorise-act
Bush Mechanic - Bush Mechanic largely irrelevant

Q2 *Complicated* - c-e separated in time and space yet can be researched;
Action = sense –analyse-act
Bush Mechanic – somewhat unnecessary

Indeterminate environment
Q3 *Complex* also called chaotic - c-e does not repeat and is unpredictable yet anticipatable in terms of patterns and fractals – butterfly beating its wings effect. This is the realm of the prototype of the exemplar project whereby patterns are distilled into an event process or product.
Action = probe- sense-act
Bush Mechanic - crucial

Q4 *Chaotic* also called incoherent - no c-e relationships can be perceived;
Action = act-sense-act
Bush Mechanic – a relevant action approach however no one pattern can unlock this environment.

The Bureaucratic Technician as a simplicity avatar

Bureaucracy clearly operates well in Q1 a 'simplex' environment where communication is essentially one way i.e. down the hierarchy and regimentation ensures obedience upwards. In this sense bureaucracy approaches complicated space by layering simplex systems on one another and using punitive control e.g. bullying to ensure lock step linkage between the layers/levels in the hierarchy. Here complexity is collapsed directly into simplicity, so social administration is seen as an issue of identity cards and regulation and so forth. The bureaucrat lenses reality through simplicity, and social innovation is unnecessary.

An emergent difference between technician and mechanic in this regard is that the technician has no longer to understand the operation of the whole only to be able to plug in a diagnostic computer and it tells the operative which system/integrated circuit to replace,

whereas the mechanic as artificer understands the whole system embodied in the structure and also the interfaces between the sub-components.

The Military as part of the Military-Industrial Simplexity in a Multiplexity world

For instance the military is often a classic example of a simplex system so that when it (the US military) takes action e.g. against Iraq it does so as if Iraq is a simplex system and so when the simplex entropic process of invasion (destruction) is completed there is no plan or capability or even recognition of a complex situation. This results in several years of internecine conflict at the hands of the 'insurgency' a chaotic Q4 element in society that seeks to drag a Q3 complex system out of coherence and from the complexity quadrant effectively preventing restoration of sanitation, water, and electricity the most basic simplexity services to civilisation, whereas the reaction of the invaders is to drag Q3 to Q1 i.e. to force a complex situation to become a simple one i.e. Q1.

Tragically once one broadens this to what may be called somewhat ironically the 'simplexity complex' we introduce globalisation and the role the corpornations has in this reductionist simplexity formula. So many globalisation rationales operate in the simplex quadrant without concern for regional differentials, wage/resource differentials or cultural variations. This seeing reality as a 'plane of uniformity' i.e. Q1 supposedly removes the need for diversity and complexity Q3, and thus also removes the need for the Bush Mechanic and artificer learning.

Yet intriguingly the most 'successful' military is one that is patternised eg can operate as sub units in the field when the need arises. Unlike the US military which is staunchly a command and control top down bureaucratic system where if you take out the leader the rest of the system can't function. Whereas, to varying extents, other military's such as Israel and Australian can 'fractalise' in combat and move into smaller semi-autonomous units which can the fractalise into still smaller, or for that matter aggregate into larger, units.

Multiplexity is used here in order to illustrate in readily understandable format the complex environment that is involved in any major military intervention. For instance any medium to major military intervention involves not only a military simplexity type intervention but physical (reconstruction), personal (relationships), social (political, governance and justice, economic sub-systems interventions) and cultural (reaffirming peace and positive path for our children's children). The combination of these individual threads/sub systems generates a multiplex system. Multiplexity gives the impression of the potential for weaving its simplexity elements/threads into a coherent socio-cultural integral fabric so to speak. The term complexity however will be used because although not as evocative of the meaning as indicated here it is the more commonly understood word.

The Artificer as complexity jockey

Much of a Artificers role is through deep experience, inc. interface and pattern recognition, to move as much as possible of complexity into complicated, especially for the customer. In this sense the bushie is a complexity jockey riding a complex horse in a complicated race. Complex organisation and structures to be managed and understood and constructed need to be able to be perceived and to a point understood, especially in lay terms, in determinate/complicated space. That is through patterns, fractals, holons, interface etc. The Artificer/Bush Mechanic Learner then operates in effect by making prototypes even moreso as exemplar projects.

Jockeying Complexity into Simplexity for Commercialisation through an Innovation process

In terms of an innovation process pure research and 'inventions' tend to be in Q4 which, brings chaos to the edge of complexity i.e. the Q4/Q3 border. Exemplar projects essentially are prototypes i.e. distilled patterns from Q3 that exist on the Q3/Q2 border. Importantly not every prototype will be effective or efficacious; indeed one in 20 may be 'successful' in that regard. The Artificer however drawing on her depth experience in complex space knows the primary patterns and interfaces and design ability e.g. test in virtual space/on the drawing board etc. and so this 'risk ratio' is substantially improved to maybe one in 5 for even one in 3.This is where the artificer learning process comes into its own i.e. learning from mistakes so that if one is not acting by establishing exemplar projects, one is not able to 'fail' and thus one remains unable to undertake learning.

Commercialisation then requires a movement from Q3 to Q1 viz. Q3 the prototype, which is then systems engineered into complicated space Q2 (with designs, flow/critical path charts, which is then concretised into a manufacturing process such as a production line and manufactured in simple space Q1. Commercialisation requires moving from complexity Q3 to simplexity Q1. Too often however complex environments are legislated to perform like simplex ones through bullying, violence and regulation.

The Bushie in Context

Although not a direct aspect of this research project, which is directly aimed at dissecting the Artificer as a phenomena, one may well ask what are some 'host positive' contexts for the bushie to survive and thrive – thrival. Ten immediately present to mind:

1. **Actual context - Immediate preferred environment**
   The shed - men's space, kitchen – feminine space, joint yang/yin/nature - garden and beyond 'the artifice of nature', in all tinkerers including 'N'ature.[31] Thomson (1995). In some ways this dichotomy is sexist it is however the received reality upon investigation. A further critique is that this does not critique the extant categories of masculine and feminine. And to some extent this is a valid critique. My own take is that each of us consist of masculine and feminine energies to different balances i.e. the yin/yang proposition. In terms these energies are representative of even broader ones evident in the cosmos. Generally speaking in males the masculine energies predominate and vice versa in women. This however is only a guide and occasionally this balance is reversed. So what this approach to context suggests is that masculine and feminine energies are both creative and synthetic and tend to manifest in different spheres of the household. Equal and different.

2. **Disappearing context - Broader local social environment**
   he community economy and its development. Wildman and Schwencke (2003). Especially the informal dimension of economy which can allow bushies to be largely under the radar of the macro system

3. **Possible though not Probable context - Macro environment**
   Some efficacious form of Social Innovation Process that recognises the importance of expressions of local ingenuity to collective even national economic performance. This means counteropening globalisation – bushie as site of dissent and gorilla learning i.e. self-taught, peer revealed and reviewed, action based. Here a host

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[31] In a broader sense one can see 'N'ature (including humanity) as the ultimate tinkerer - the bricoleur par excellence - the Artificer extraordinaire - with evolution as her tool or heuristic. In this light we may all have a 'god spot' within - the urge to Artifice. To be a Bush Mechanic, one could even envisage a human right to Artifice.

positive environment is one that to varying extents practicable meets the four bushie principles established in Ch 7, where the exemplar project is seen as an important contribution to social development that addresses urgent needs from the big global problematique picture in ways that we can all learn from.

4. **Possible historical context - Rare Trades and Heritage Trades**
   All trades are on decline except for the area now called 'heritage trades' or whistle makers or bullock cart wheel makers or horse collar makers or blacksmiths etc. etc. Hundreds of trades that a century ago were prevalent have all but disappeared today, and in many of these trades being ingenious, creatively adapting to the task at hand, making do with available materials, all bushie type skills, were required. Today technician's plug in a computer which tells them which IC Board to replace, they have little or no understanding of the overall machine. Roadside mechanics are one such example 50 years ago they could solve almost any problem in any vehicle whereas nowadays all they do is swap batteries, change tyres and phone a tow.

   The rush of technological change is sweeping such skills away and we seek to save them, even as we realise they are part of us, by calling them heritage skills. France is far ahead in this regard, whereas in Australia we recognise something different.

   Such grades of vocational skill are all but lost in the English speaking world however again France the context is recognised, respected and protected. France has for instance a 'Museum of trades'. Furthermore most trades have several layers of expertise above tradesman and in fact one can from the phone book gain the services of a 'professor in plumbing' who will do the work himself and may well employ a senior apprentice but has layers of skill equivalent to a masters and doctorate. He is thus able to work on all types of plumbing eg ancient castles (which are also important for the tourist trade).

   This research report does not seek to encapsulate Artificers as a museum display, nor to see it as the protector of such disappearing trades though both are important, rather this e-book seeks to explicate the importance of such synthetical skills as bushies have to the present and future day challenges of our computerised and globalised and consumerised and even terrorised world.

5. **Bushie preferred context - from a 'problem solver' to a 'synthesis maker'**
   Today the opportunity to 'problem solver' as above does not occur as often for the above reasons. This for me somewhat misrepresents what I have found out about Artificers in research for this report. Yes they are ostensibly problem solvers a little like dogs doing tricks in the circus, however they are capable of much more and indeed are 'synthesis makers' – designers of 'exemplar projects' in whole new systems of motoring for instance even rocket science for the betterment of humanity, society however today reifies few opportunities/contexts apart from technician other than 'heritage skills' or 'problem solving'.

   Operating individually on collective problems in line with the four principles of the Artificer explicated above.

6. **IT carries the context day - so *'I think the computers have it'***
   CAD/CAM and computer games have won the day. Fencing wire is a thing of the past. Recently I had a first hand chance to witness such a phenomenon.

My 4 year old grandson, when his father and I took him on a fishing trip, something he had loved to do in the past. And in fact had out fished us on many occasions long before he could even hold and wind a fishing rod, for the first two and half hours wanted to return to the game on shore. It took nearly 3 hours for the lad to shift his attention to fishing and then you simply couldn't stop him, he caught fish and asked the usual million questions one after the other and his father and I looked at one another and smiled and said the inevitable, tongue in cheek of course, man we should have brought the game that would have kept him quite!!! So the context today for our youth is computer games and regulations. Games are pay, plug and play whereas artisans take a decade or more to move from apprentice to master tradesman and several more to move to artisan.

7. **The Bushie and four types of context**

In section above some four types of socio-organisational environments (simple, complicated, complex and chaotic) are discussed in the context of their 'host positiveness' to what may be described as 'bushieness'. Using this four way matrix developed by the Cynefin Institute (see section above) bushies are found to suit in particular complicated and complex environments where cause and effect are not straight forward.

8. **Actional Context – the delicacy and socially enlivening nature of action**

Action has Horizontal (breadth/arenas for action) and Vertical (as in depth/meaning/layers of causation/consciousness) dimensions. In order to present a basic position these distinctions will be noted and not drawn. Furthermore action is distilled into individual and collective our actions and various structural outcomes of the operations of society. For example actions can be concretised in an intentional manner in things such as the Exemplar Project. So any understanding of the Artificer Exemplar Project requires an understanding of the key context for same and that is action viz. attributes of action.

In many cultures social reification occurs in the context of compliance and service esp. in Australian culture, whereas action for change and improvement is the province of the Artificer, for instance in Australia the concept of (individual) agency especially relevant to the Artificer and associated Exemplar Project action has, especially over the past generation been traded for compliance. (see Appendix F for further discussion of this issue and bullet points in the following point re. compliance)

9. **The Context of Scale: Globalisation V's glocalisation**

With the increasing cost of corporate governance and compliance as indicated in the previous point comes the added burden of interfacing with the broader context of overseas competition in a globalised world.

For instance:
- In the past generation pages of Commonwealth legislation passed each decade has doubled from 30,000 and it took the seventy years from federation to 1970 to reach 10,000pg/decade. Furthermore State legislation has shown a similar increase e.g. the amount of legislation passed each decade in Queensland has nearly trebled to around 80,000pg/decadein the past generation. All up adding a cost factor between 8%-10% to businesses bottom lines and costing a full 8% of GDP. Molina (2005).

- For corporations in Australia the cost of governance regulations imposed by Federal Government adds an estimated 11% to the cost bottom line. Morrissey (2004)
- Thus Australian corporates look to a staggering 20% impost on bottom lines and small business a half that
- Most Australian businesses facing increasing competition from imports particularly from China and other developing nations in the manufacturing and agricultural sectors. And are constrained to comply with the above in occupational health and safety and chemical residue regulations often in draconian manner. Whereas their overseas competition has **no** such constraints.
- As a ball park this puts the basic cost of compliance platform 20% higher than their competition while wages are up to 1000% higher. [See Appendix B for an illustrative cost comparison for Manufacturing in Jakarta cp. Australia] All in all not a recipe for success. Success in the author's view does not include even more draconian compliance 'mit' globalisation programs rather a massive focus on local sustainability economy. As an aside a recent report suggested that the Chinese Shenzhen mobile phone battery manufacturing company had removed all its computers and replaced them with people!!!!!!

Here we have laid bare a clear challenge for Developed economies inc. Australia's into the 21st century. In many ways globalisation has much to offer yet the way it is being delivered effectively throws the baby out with the bath water. This e-book argues we need a locally responsive globalisation – glocalisation – both global and local. Such a glocal environment would to all intents be most host positive to Artificer Learning.

Indeed in Australia, or most other nations for that matter, being seen as a nation of tinkerers in the French sense of Bricoleur as citizen is perceived as negative especially when for instance compared to the concept of a 'nation of compliant consumers'.

10. Types of Interface - an exemplar of an Integral Synapse

Interface may indeed be seen as a 'social synapse' with the Artificer providing a vital role for vertical and integration into a holistic exemplar project. Interface in this sense of synapse fires in a spherical manner i.e. horizontally and vertically to other related nerve cells.

Interface here may be seen to have some twenty one attributes in the following twelve categories which in turn can be seen in some six dimensions: (1) breadth/length attributes (horizontal 1), (2) width (horizontal 2) attributes, (3) height (vertical) depth attributes (nested systems, the human dimension and ultimately the global problematique) and, (4) dimensions or lenses - one can use to move between the dimensions and view a particular interface attribute from/through say one of the particular vantage point/perspective. Clearly this taxonomy introduces a fifth (5) dimension that of volume – breadthxwidthxdepth, and after all this is said and done we need to allow for the (6) wild card – the totally unexpected.
[1] Technical Interface category
[2] Human Ecology Interface category
[3] Ends Interface (Normative and Strategic) category
[4] Lateral Interface category
[5] Informal Interface category
[6] Learning Interface category

[7] Design Interface category
[8] Butterfly Effect Interface category
[9] Interface as Focus
[10] Failure Interface category
[11] Singing Tool Interface category
[12] The Polis as interface nest
[13] Personalising the effect of extended interface

These if nothing else can provide a useful check list for someone considering, planning, competing or reviewing a project to ensure nothing has been left out of consideration.

Related concepts: Interface /Interstice /Alignment /Interaction /linkage

In detail the dimensions of interface (I) include:
[1] Technical Interface category - breadth

I-1. Interface within components:
For instance components of a motor – how the components of a motor/sub system interface, align or work together.

I-2. Interface between I-1 & other component subsystems:
For instance the drive system (propellers), steering system (rudders and hull shape) and the navigation system and the external conditions e.g. waves – how the sub systems fit together. In IT this process is called 'Integration Technology' for instance CAD/CAM and the use of such technology in a 'smart' house or 'smart' car to integrate all the various discrete technologies in operation. A simple example of such an IT is the master remote that controls all ones AV (Audio Visual) equipment replacing 5 or 6 individual remotes.

I-3. Interface between I-2 & the design of the overall macro system:
For instance the boat itself – how the overall system works - the integration of 'Systems Design and Integration Technology'. Here the interface issue is that between the AV equipment and the design of the house.

I-4. Interface between I-3 & its use in the macro systems environment:
For instance road conditions – how the specific system interacts with its immediate environment.

[2] Human Ecology Interface category – depth

I-5. Interface between I-4 via. techne & the Exemplar and Exemplum - techne reinterpreting technology
Here we see the Exemplar as a distillation of background principles and theories applied/woven to the former through the techne of the Artificer, and vice versa where the Exemplum is a story based around the generalisation of techniques used in the exemplar. Generally the exemplum is by way of an illustrative story/narrative/parable of how the big picture (e.g a day in ones life in this particular utopia) can work. This is THE interface of the Artificer, and rests on the clear distinction between technical (the machine – the doing) and the mind (the book – the thinking) with techne (the hand – the forming/shaping) bringing/braiding/weaving them together. So in some ways techne is 'poetry in motion'.

Techne links the technical and the human realms. In the exemplar, for instance that completed by the author for this e-book, building a boat or marine innovation, was craftsmanship reinterpreting technology as, for instance, the boat shape and motors

chosen were relatively fixed. In other forms of design technology reinterprets craftsmanship for instance in the creation of an avant guard plastic chair.

I-6. Interface between I-5 & (a) its use, (b) its user & (c) its interactive agency:

For instance the types of use and design requirements that the user has e.g. ergonomic requirements to maximise the efficaciousness of the artefact, amount of training, catastrophe user ease of use or ease of causation. Such interface may be called **Interface Agency** and has emerged as an absolutely crucial as one can know of the interfaces and potentials yet not have any 'authority' | 'discretion' | 'professional autonomy' | 'discretion' | 'agency' to do anything about it or even more concerning any responsibility to watch out for malfunctions in such interfaces. As machines become more and more complex and 'intelligent' an emergent crucial interface gradient is the transition between 'human' control and 'auto-pilot' control as it were for instance especially in planes and several fatal aircraft accidents have been directly attributable to such gradient interface malfunctions. So what can a pilot do when the machine malfunctions and she knows but it doesn't and vice versa, and how and when and at what point on the 'human control' | 'machine control' gradient does agency move from pilot to auto-pilot for instance.

I-7. Interface between I-6 & its socio- technical operating system:

For instance driver, road network, road rules, capability of other drivers as operator i.e. socio-technical systems, that is how the system and its immediate environment interact with the operator of that system – the **Exemplar Project**.

I-8. Interface between I-7 & the human ecology of the user:

For instance the roads and environmental issues, fuel consumption and sustainability, the driver as human being herself located within broader structures and systems inc. culture, social regulation, suburban design, agency of the individual V's controlling influenced of the structural systems within which the individual locates etc. – the **Social Holon**

I-9. Interface between I-8 & the intentionality of the trip:

That is trip destination of the project – the futures dimension of interface, agency V's intentionality V's social control within which the individual locates – the **Exemplar Project** in use.

[3] Ends Interface (Normative and Strategic) category - *lens*

I-10. Interface between I-9 & the instrumental dimensions of the Global Problematique:

Viz. needs of the situation i.e. for instance don't fiddle while Rome burns – link to the Global Problematique. Here we interface with the strategic priority and governancal dimensions of the Global Problematique.

I-11. Interface between I-10 & the normative dimension of the Global Problematique:

For instance the normative futures motto of 'how then can we live together today for a better world for our children's children.

[4] Lateral Interface category - *breadth*

I-12. Interface between I-11 & Lateral/creative/left field opportunities:

For instance provision or at least allowance for influence from other fields e.g interdisciplinary or moreso transdisciplinary activities (which deliberately set themselves across conventional categories/disciplines) yet, for instance are missing in design of bureaucracy (see explication next section).

[5] Informal Interface category - *width*
I-13. Interface with formal, & informal power systems:

Such as accreditation requirements as well as family, community or mutual aid associations even culture.

[6] Learning Interface category – *volume* *e.g. breadth, depth and height*
I-14. Interface with learning:

For instance primarily learning through doing.

[7] Design Interface category- *height*
I-15. Interface within 'D'esign process

As a key contributor to artificer efficaciousness i.e. between Problematique | Idea | Design | Implementation and | Learning.

[8] Butterfly Effect Interface category - *wildcard*

I-16. Interface between I-12 & happenstance:

Here interface links to happenstance, synchronicity and the deeper causes of creativity. Causation is seen as non-simple, non-linear and poly-temporal i.e. the environment is complex not simplex with the possibility for several timelines to intersect. Cause and effect are not assumed to be simply related in a direct linear sequential manner. Cause and effect are in terms of probabilities and patterns not formulae.

In these instances synchronicity, coincidence, happenstance or the beating of a butterfly's wings in Brazil can cause a cyclone in Brisbane type events need to be incorporated. Here we make allowance for interface with phenomena such as creativity, happenstance, opportunity, synchronicity, insight, intuition, serendipity (the apple hitting one on the head) and so forth, all important parts of our humanity yet are often excluded from our conventional planning systems.

I-17a. Cybernetics - morphing by transit through interface:

The context interface, for instance cross fertilisation where one field moves through the interface and fertilises developments in another, in short a form of morphogenic field. [see following point I-18 for further explication]

I-17b. Cybernetics - instability of interface:

Furthermore cybernetics can be seen as having at least five orders of complexity:
1. **Stable system** (in general), **stable interfaces** between primary project system components, **stable environment/nesting system** - bureaucracies work well here
2. **Un-Stable system** (one dimension), **stable interfaces** between primary project system components with one dimension unstable, **stable environment**
3. **Unstable system** (in general), **stable interfaces** as far as practicable between primary project system components, **unstable environment**
4. **Unstable system** (in general), **unstable interfaces** between primary project system components and with the environment, **unstable environment**

5. **Unstable system** (in general), **stable interfaces** between primary project system components (within the boat**), unstable interface** with the environment (between boat and waves), **unstable environment** (waves, wind, tide, visibility, shoals etc. the global problematique for the project**).** This is a typical marine operating environment and typical exemplar project environment.

Clearly interface and its stability are a crucial attribute of fourth order cybernetic management, and any serious Artificers 'tool kit'. Endenberg (2006:22), broadly similar to Emery's (1993) socio-technical system, see also Beer (1973), (1974).

[9] Interface itself as Focus - *lens*
I-18a. Interface as the included middle:

A content interface where the interface itself becomes an 'exemplar project' itself. One where interface becomes a discrete arena of knowledge e.g. Technology Integration, Community Economic Development arising from Economics and Social Work disciplines is combined into a discrete discipline in for instance Simon Fraser University. Indeed in deeper reflections on interface one comes to realise that a project is basically an assemblage of interfaces rather than discrete components, so that the space or 'interspace' between the components becomes a silence of symbiosis - an morphic field of artificing. [32]

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[32] NB: this field of interfaces or **Morphogenic Field** (MF) of Sheldrake's hypothesis of formative causation (1994), is somewhat similar to yet distinct from the **Akashic field** of Laszlo (2004). Laszlo's filed emphaisies the interconnectedness of everything (esoteric talk for the interface of everything the synapse of everything Laszlo (2004:10) which in turn form the basis of GUT's leading to TOE - **Grand Unifying Theories** (basically theories of grand and petite interface) leading to **Theory Of Everything** summarised say in a GUT version of $e=mc^2$. Here we see interface, broadly understood, as having parallels with **coherence** (a logical, orderly, and aesthetically consistent relationship of interconected parts with an oveall sense of understandabiltiy), **correlation, congruence** and **cohesion** and **synapse.** These terms also describe **Post Darwinian Evolutionary theory** where subtle and overt muti faceted and highly tuned congruence within and without an organism ensure an inside out and outside in fit from its geonome to its behaviour, between the organism and its environment.

Morphogenic and **Akashic** fields are similar and different in that both see the particular field as underpinning reality, yet there are differences as Sheldrake, suggests that the morphogenic field is an organising principle that for instance can, my words, work on the underpinning Akashic field of undifferentiated potential to bring forth through evolution and human creativity various species and other exemplar projects so to speak.In a speculative sense the Morphic field maybe considered more an Artificers or **Demiurgic field** which draws from, and to an extent interpenetrates with and interprets, the Akashic field.

Morphic fields are genetic/biological and memetic/memological patterns underlying species evolution generating evolutionary chreodes or paths that evolution takes through both genetic, and memetic evolution in the biosphere and noosphere respectively. For instance parallel evolution occurs say in Australia and parts of North America in species such as wombats and several other mammals and some birds that act and look very similar yet represent completely separate evolutionary paths (marsupial V's placental mammals) over millions of years and thousands of miles. Wildman and Miller (2004), (2006). Some authors continue that enactment of the Morphic field in concrete terms of the 'touchable here and now' i.e. manifest form may be represented by a circle mandala or Chi (life force energy) which represents the Cosmos, incorporating within them often by way of the dance of dynamic balance within the universal mutually dependent principles of yin yang - the interdependent duality. Abram (2006)

Akashic Field (AF) is more primordial and underlies or interfaces and interpenetrates MF. We are basically just talking about the electromagnetic soup and geomagnetically-based life on Earth. The Askashic has a root in the vacuum potential, but what doesn't? It is equivalent to the domain of Jung's collective unconscious, across all species, and in my view, underlies Wilber's qualification of the morphic field in that it is retrospective esp. for Wilber (1995:594) morphic resonance. MF when coupled with an omega point (an ultimate exemplar project if ever there was one) leads to 'creative emergence' which has both a biological and noological dimension. It is in this Wilberian sense of morphic field + omega point that I use the term 'morphic field'. This then is the field of **integral artificing**. As indicated above the process of holonic potentiation sits within this morphic field of integral artificing, and, in turn, is underpinned by the Akashic field.

I-18b. Interface as interdependence:

Here the exemplar project can be seen as an agglomeration of interfaces. Indeed one may extend the concept of interface into the social sciences and one comes up with terms such as co-operation and ultimately mutual aid and interdependence. So rather than looking at the individual components in a particular project the artificer looks to what the overall project does and how efficaciously it does it. For instance a particular bushy project maybe to some fencing wire an old tree trunk and bits of grass however they may also be used to fix a broken sub frame on a car and repair a puncture so that the car can take some folk from an inland Australian Aboriginal tribe to get some mother of pearl shells to bring them back for an elder to perform a rain ceremony. [based on an actual episode in the ABC's Bush Mechanic TV series]

Now you have interface with zing!!

Whereas the individual components are ultra boring the way they are arranged and the social holon type use they are put to is the spark that differentiates a true exemplar project.

[10] Failure Interface category – volume

I-19. When disaster strikes!! When interface does not work:

Here we have two principal types of interface failure:

I-19.1 Cumulative knock on - for example in allopathic medicine a patient presents with a symptom which is addressed by prescribing a particular medicine, the interface interaction between symptom medicine and person can, and not in all cases, then present another or knock on symptom e.g. blood pressure tablets causing indigestion, which is then treated by another medicine and so on the knock on chain of medications can end up severely compromising the patient yet even though each medicine was correctly prescribed the holistic perspective was not taken by the medical practitioner and the person treated as if they were no more than the presenting symptom.

I-19.2 Negative Symbiosis - for instance can be seen in the relationship of car, suburb and urban design. The negative symbiosis emerges when one adds declining world reserves of oil to the interface equation. What has occurred over a century has been the interdependence of urban form e.g. the suburb, shopping centre, work place etc. on the vehicle which becomes a sort of mobile interface totalising and ultimately removing other forms of localist village based urban and rural-urban form.

I-19.3 Agency interface - where for instance professional discretion is not exercised (or required) properly and a disaster ensues e.g. pilot/driver error etc.

I-19.4 Disaster - for instance through catastrophic failure in interface wherein although the Titanic, Hindenburg or Kursk may be respectively state of the art ocean-ship, air-ship or nuclear underwater-ship (submarine) when failure occurs what are the back up and escape systems? So often these are ill thought out and rehearsed or just simply and often arrogantly ignored and in an emergency found wanting, especially when different sectors of society or Government are involved. Failure can come from many causes – mechanical, operator, scenario, recovery systems, back up systems, sabotage, terrorism and so forth.

Both support the concept of the 'holon' and are in turn similar to **Bohm's** Holo-movement or **holoflow field** concept (http://www.reference.com/browse/wiki/Holomovement)which may be described as to this viewpoint, holo-movement is the underlying holographic flow (of possibly not yet defined qualities related to thought, matter and energy) in which reality (or the possible realities) can be experienced. Holo-movement may be expressed as a **holographic principle** which claims that all of the information contained in a volume of space can be represented by a theory that lives in the boundary/interface of that region. In other words, if you have a room then you can model all of the events within that room by creating a theory that only takes into account what happens in the walls of the room. A metaphysical concept of the 'fabric of reality' is implying 'undivided wholeness in flowing movement'.

I-19.5 System failure - here the unit and human operator are functioning well but the system in which they locate fails and so they also fail e.g. a plane not given clearance to land before it runs out of fuel and crashes and kills everyone on board (actual USA air accident)

I-19.6 Contingent nature of reality - may be defined as probabilities for random connections, mistakes, errors (or serendipity) to occur in complex systems with a 'lattice' of interfaces e.g. a space shuttle or simply through progressive 'bad luck' may, when subject to the contingent nature of reality (including yet also separate to the exemplar project) at ground zero i.e. on the spot.

[11] Singing Tool interface category - *height*

I-20. Interface as Artifice not Fortune - God casts the Die not the Dice:

This interface can be captured in one of Einstein's most famous aphorisms that has come down to us as 'God does not play dice' however another translation from the original German is 'God casts the die not the dice'. Wertheim (1997:185). Here God is portrayed as the master Artificer – the Artificer of artificers[33] so to speak, not so much the exoteric artisan shaping a superb piece of jewellery or instrument or even the esoteric demiurge shaping the world, who uses the tools that result from the die but conceiving, designing and casting the original die to make the first tool so to speak to match with the makers techne. These die represent Einstein's ten formulae for describing the operations of nature – his theory of relativity.

Today some 60 years on and after the triumph of quantum theory of the 1950's and fractal geometry and chaos theory of the 1990's and now hyperspace theory this aphorism from Einstein is still most relevant, so that the idea of a certain level of indeterminacy (dance steps are indicative not prescriptive) and heuristic cp. algorithm (a dance is a decision tree rather than production line) is in bedded in our cosmic aphorism.

The question remains, and so it should, is god dancing alone or with us or with science etc.?

[12] The Polis as interface nest - *volume*

I-21. Active Citizenship – interface between Artificer & the Polis: enter stage left - the Do-ocracy

An artificer is not simply an upmarket artisan + interface, an artificer is also interfaces the polis as a contributing member of the broader society. As such the artificer sees her Artificership as having a citizen's role as well technical and thus it is part of the very definition of citizenship. This necessitates active participation in/awareness of the body politic. In this polis thinking and doing are not separated with the former having precedence over the latter the two are braided together. In previous eras this was the role of the Workers Education Associations.

In more ancient times we have the Aristotelian search for eudemonia - a society of human flourishing especially through Isonomy a polis of equality leading to the Hellenistic Therapeutic Community and more recently a 'Do-ocracy' where emphasis is given to 'doing' not 'saying' or 'talking' so it is hand knowledge that is reified in the modern day 'do-ocracy'.

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[33] The Master of Artificers exoterically has many names in different esoteric traditions one the Christian it is Christos an esoteric reflection of the exoteric artificer that Christ was that is a carpenter tradesman and that this is a subset of 'logos - the word - becoming flesh and living amongst us' so the lived life is reified with the artificer as an agent thereof. In this context 'we are not saved by words rather saved for works'. Here the esoteric life is embedded in works in the lived life experience of the day to day.

[For more information on this interface please see Appendix K - A short history of Western philosophical thinking related to the Artificer concept from 600BC to the present, and support document BMARP5: Exploring Bureaucracy and identifying a Bushy alternative in Do-ocracy]

I-22. Interface - linking the individual & structure

I-22a Interface as epistemology

From the holonic and systems perspectives we have (1) Systems Thinking leading to (2) Holonic Thinking leading to (3) **Interface Thinking** leading to (4) Pattern Thinking and back. Here holon or sub system to sub system and system interfaces in fact now comprises a 'way of thinking' that has finally left the conventional 'Component Thinking' behind. Further 'thinking' is used in the applied sense of 'thinking and doing' the cognitive and the structuration components. In relation to Wilber's quadrants such holonic thinking is AQAL all quadrants all levels. In this regard Systems Thinking sees the Exemplar project as structuring at interfaced holonically related levels.

As Marx is reported to have said (and I paraphrase) 'it is not the consciousness (agency) of men that determines their reality but (the structure of) their economic-material realities that determines their consciousness' Bunzl (2006:88) (PW). So applying holonic thinking to this Marx is saying it is the holon (structure) in which they locate that strongly influences our thinking and again interfaces we are born into strongly affect our thinking and thus doing as well as and even more so than our individual agency/choice.

I-22b. Enhancing self confidence - linking Structure and Agency for the individual Artificer

Undertaking a project with all these **types of interface** can in the long run have a huge impact on ones self esteem. For me the final proving, and successful, component test, in this instance of the radio gear in early 2008 when the project was commenced in late 2003, proved a very substantial and somewhat unexpected psychological boost to my self esteem. Clearly this can go both ways an unsuccessful project will have a certain personal cost. So that one may say that structure efficacy directly impacts agency viz. when the boat's myriad of interfaces finally worked I felt elated and vindicated.

I-22c. Personalising Interface - dealing with 'death through a thousand interfaces' effect in the Exemplar Project

Say your exemplar project with a basic allowance for your labour and including materials, design time and so forth, takes several years to custom build, and costs $0.1m. Compare this, for instance this to a purchase of a new vehicle for the same amount that has been custom(er) optioned in a somewhat unique manner e.g. motor, interior - dash, roof, carpets, seats, trim colours with fitments etc. The order takes around 12 months to fill. These are experiences that for instance my self and my wife have had in parallel, respectively both finalising in March 2007.

That is while I was building the boat idea to completion 40mths cost $0.14m my wife was obtaining an new vehicle some 12mths from idea to order to construction to delivery cost $0.125m (that is both cost about the same and took an extended amount of time to materialise). For us this type of expenditure is substantial in our overall life and we are cautions, even conservative, with the use and application of money and other financial resources. I deliberately monitored both processes and established criteria to evaluate the overall experience. NB: (1) the issue of finance availability is not considered in either project as the budgets were established as about the same even a

'his' and 'hers' if one wishes and in both instances the projects came in a little over budget. (2) a category of 'positive achievement' at the completion of the project is not included clearly the former marine category would have the greater feeling of positive achievement than the vehicle however the former is mitigated by the following two considerations.

Criteria

If during the period of undertaking the projects one counts the number of times the project 'runs into a brick wall', whether it be for service, product availability, bring rubbed out as a customer, and looks like 'falling over' then one has to grit ones teeth, gird ones loins and plod on. **These qualitative instances of dissonance were recorded for the 'going the extra mile' category of psychological impact.**

If, at the point of first use, on a visceral level one is asked to assess ones 'feeling of satisfaction with the overall project' or 'the taste the whole process left in your mouth - from go to wo! So to speak' on a scale of -10 to 0 to +10 (very unsatisfied - neutral - very satisfied). Here we will attempt two qualitative assessments based on non cognitive evaluations of the overall experience: (1) the sense of stoicism needed to stick with the project; and (2) the feeling of inner satisfaction one has at the end of the overall project. **These scores were aggregated for the kick in the stomach V's tummy rub category of psychological impact.**

(1) Going the next mile: Clearly the former will take 'going the next mile' compared to the latter that is determination, grinding attention to detail and dealing with the lack of professionalism and service commitment in, and 'being rubbed out or directly and pointedly disrespected' by distributors and retail outlets in general. This necessitates a rather grim determination to continue to struggle and fight ones way forward - such a project is never a pleasant experience **ever**, not in the particular and not in the general. One does however have a certain stoicism to allude to and call on a certain mentoring expectation as ones project mentor says rather stoically yet again 'well Paul one has to go the extra mile and a half!!' Agreed and yes intellectually and financially one can understand and accept this - sort of at intellectual and operational levels. On the other hand with my wife's experience with her vehicle shows a very different experience. If one notes the points where one had to 'grit ones teeth and stick at it' then with the first project it was around 100 times with the boat compared to around 5 times with the vehicle. **That is the marine project required 'going the extra mile' 20 times more than the vehicle project.**

(2) Kick in the guts: Indeed statistics kept during the two projects indicated that for the marine project of about 65 firms who provided products and services for the Exemplar Project ('provided' was taken to mean products and services over $100 and or with a frequency of 3 attendances or instances of provision) only 6 gave a positive service level. That is less than10% of firms delivered a service level that scored positive (+5 and above) and most scored (-3 and below with an average of -6), meaning in the overall project I experienced some 350 negatives compared to 30 positives. Whereas my wife's experience there were some 8 firms (or discrete organisations/functions within the car company) who provided significant products and services to the project of these the average score was +7 giving an overall 'tummy rub' of +56 with no negatives, other than for instance compared to previous purchase experience through brokers etc. **So overall the marine project ends up with -300 and the vehicle project with a +50 score.**

Conextualising these figures

(1) These figures apply to projects/scenarios of this size ($0.1 to $0.15mAUD - 2007) undertaken in Australia, by someone such as myself with 3 out of 10 (6 out of 10 by projects completion) direct knowledge of the specific activities required for the project, who is undertaking the role of 'owner builder' so to speak thereby co-ordinating the interfaces etc. embedded in the project's implementation.

(2) These scenarios do not apply for instance to folk/project sponsors who are undertaking such a project who;

(a) Have unlimited funds or

(b) Deep knowledge of the content of the project and would in effect 'live aboard' as they build the boat say over a 6 year period or

(c) Had a lifestyle and associated networks that incorporated the scenarios on a day to day basis or combination thereof.

And thus the fourth category of person undertaking such a scenario/project is;

(d) Someone such as myself with 3 out of 10 (6 out of 10 by projects completion) direct knowledge of the specific activities required for the project.

The most difficult category for sponsor by far is (d) and it is estimated that the following percentages represent the extent that commenced projects in these four categories end up as 'UP's' - Unfinished Projects viz. 0%, 30%, 20%, 60%.

(3) In regard to (a) the person there simply pays someone else to undertake responsibility for the overall project and in (b) the person does the work themself thus eliminating many of the rub outs, while in (c) the person knows the networks and no doubt 'has a few favours he can call in' and can push the project through the system from within the system without actually doing the bits and pieces.

(4) In all instances the problems etc. listed herein will arise no matter what however in the (a) someone pays to get them to go away and (b) someone themself works directly to overcome them and (c) the person knows the key experts/artisans to do a good job first time and he has enough knowledge and experience to ensure himself that the interfaces work.

(5) Australia is in many regards a third world nation when it comes to providing a supportive context for these artificer type capabilities and scenarios. We are largely a consumerist society who has lost the ability to DIY with gardens, home cooking, chooks, vehicle and home repairs etc. etc. There are few if any artificer type networks in Australia though there are some specific purpose hobbyist type groups**.**

I-22. Interface and WMC (weapons of mass construction)

↔Interface ↔ Interdependency ↔ Web of life ↔ neg entropy ↔ life affirming technology ↔Common good ↔ Ecosophy ↔peace and prosperity for all ↔Right livelihood for all (l)earning ↔ Creactiviating ↔ Love economy y/l/earning ↔Artificing (WMC – Weapons of Mass Construction)↔ Exemplar projects ↔ Interface ↔

1-23. Interface as Surveillance - when Interface goes Bad

Complexity theory is often used as the basis of recent claims by the 'resilience movement' (see http://www.resalliance.org/1.php) via. resilience in individuals, organisations and now larger global systems. If we follow the Complexity Theory we get into what is called 'bifurcations' e.g. split into left or right, or positive or negative. Consequently this can lead into a type of interface gone good bifurcation for instance the Exemplar Project and interface gone bad bifurcation, then too much of the wrong type of interface e.g. the bureaucratic (as discussed below) or military type as discussed extensively elsewhere in this eBook, adds up to less flexibility in a system more rigidity and less evolvability through less resilience. [**NB:** CT is the study of complex and chaotic systems and how order, pattern, and structure can arise from them and that processes having a large number of seemingly independent agents can spontaneously order themselves into a coherent system. In this instance **Exemplar Systems Development** may be seen as a type of complexity systems development which innovates positive neg entropic interfaces to synthesis a systems thrival - combining thriving and surviving demonstrated in Exemplar Project. The reader can find CT in various arenas,

cognitive psychology, neurophysiology, cardiology, ecology, economics, social psychology, organisational psychology, mathematics and so forth].

Through we generally end up at a 'catastrophe' and we have a large increase over the past decade of catastrophe theory books and authors such as Diamond's (2005) global Collapse which looks historically at how societies choose to fail or survive, Paupp (2007) on the collapse of the American Empire, Laszlo's (2006:14-15) global chaos point which he identifies as being around 2012, and Homer-Dixon, (2007), who identifies the emergence of resilience draining stresses as: Population stress, Energy Stress, Environmental Stress, Climate Stress and Economic Stress. Such collapse from 'enforced' interface via. police states etc. in places such as the Soviet Union and Nazi Germany etc. all point to the fact that interface can go bad. Here interface is linear sequential, ubiquitous and top down - interface as surveillance.

Seldom, however, do we see Governance stress in here for some reason many authors simply miss this aspect of the picture like we often miss that we have glasses or contacts on or as the old saying goes 'don't ask fish about water'. In many of these books, when the author goes into the topic seriously enough, we find a critique of the present types of dysfunctional interface in phenomena such as the surveillance society, predatory global capitalism, nation state environmental policies, managerialism, militarianism and so forth. Few if any see the crisis as one of Governance. Furthermore many are fine at analysing the attributes of collapse but not of synthesis of neg-entropy if you will. Usually these somewhat scattered hints at the next step suggest that resilience is crucial and needs to be applied through what one may call the prospective/proactive/prohairesis mind, which is comfortable with uncertainty and open to innovation. Also extolled are the virtues of local community experimentation, using 'bush mechanic style small-scale experiments/exemplar projects to see what kinds of technologies, organizations and procedures work best under different breakdown scenarios'.

One response to the critic who says such small scale initiatives as disparately developed Exemplar Projects are not sumable and of themselves are insignificant in relation to the massive Global task at hand. As the reader will note from elsewhere in this eBook other authors such as I suggest some kind of internet-based open-source architecture— to help aggregate towards 'critical mass' such individual and community efforts - indeed somewhat like and internet version of Albery's (1992) Book of Visions of social innovations to our most pressing problems and to begin laying down plans for action in a volatile future.

I-24. Interface as Holonic Thinking

With Social Innovation say through an Exemplar Project then we can see that not only does differentiation of the many parts therein produce a new 'manyness' whereas the new integration or interface synergy produces a new 'oneness' that is the boat. It is this interface between differentiation and integration forms new holons which are simultaneously micro and macro. This interface is discussed elsewhere in this eBook and writ large is as Holonic Thinking, Interface Thinking and Pattern Thinking

11. Open sourcing the Bushie

The IT concept of 'open source' is an example of how Artificers can use common platform beyond the commercial world, to generate their own projects. Wikipedia, word processing programs, computer operating system such as Linux, music and so forth all use open source programs and or allow for everyone to 'change an entry'. Thus everyone becomes a co-author, the results are publicly available and the project then is able to reach out to a broader audience and help ensure its own evolution.

An aspect of open sourcing bush mechanics in this project has been the recognition of the need for bushies to collaborate across modalities eg. tehno-bushies, farm bushies, machine bushies, building bushies, boating bushes and so forth, through for instance a web based clearing house. Open-sourcing is an example of the actual democratising potential of net and new technology and illustrates is broader even community building potential.

12. Bridging the City-Country Divide

The Artificer skills though largely originating in the bush reach into the urban areas into back yard sheds, garages, kitchens, sewing areas, gardens and on and on into mainstream industry and intergenerational relationships between a Grandfather and grandson and so forth.

Today many city children do not know where milk comes from or an egg and so forth. The have few if any jobs around the house and almost none outside. Mainly today young boys stay in front of the TV playing computer games. This all has its place however it also means that the interface/divide between city and country grows ever more gaping. Recently the Governor General in Australia (05-2006) (who was born in the bush) became so concerned he undertook a trip of one and a half thousand kilometres into to Australian bush from Canberra to explore just this dilemma.

There are many dimensions to his gnawing and gaping divide including, globalisation, urban – rural shift (world wide phenomenon), employment options and so forth, such that bridging the divide though urgent and constant will not be an easy task. One small way of bridging this divide can be provided by Artificers, however first they have to be able to reach out beyond their sheds and school children etc. need to know they exist. This is an important communication task beyond the scope of this e-book however one that urgently needs exploring and tackling, e.g. through for instance ABC TV series on indigenous bush mechanics, Mark Thomson's poplar ethnographic books on 'blokes and their sheds' etc., and workshops such as conducted by the author in late 2005 on bush mechanics. Ultimately a clearing house of bushy projects etc would at least make this interface immediately accessible.

13. The Bushy as Occupational Therapist

My experiences in the discovering the usefulness of the Artificer process do addressing some aspects of disability has had a long history. From helping a father with hemiplegia who as a master plumber as he got older needed another pair of 'hands' to carry out the plumbing work, to serving on the board of a respite centre for young people with a disability for some years to incorporating a bushy friend with a disability into the Artificer workshop held in late 2005. In this latter case she has pioneered the application of the Artificer criteria to her work in her exemplar project of restructuring her lifestyle and workstyle after suffering severe brain injury in a horse accident a decade ago. In fact as she says she has had to become her own 'OT'. Stanger (2004).

It may well be that the structure of the Artificer criteria esp. the exemplar project allow for a simpatico structuring of OT activities for the person with a disability.
Criteria 1 – Exemplar Project - Practical and conceptual framework, rationale and strange attractor for restructuring and reorienting ones lifestyle and workstyle
Criteria 2 – Social Holon - Hope to help others
Criteria 3 – Global Problematique - Hope that one can, through ones agency, understand and contribute to the big picture and the big picture can contribute to the relevance of ones Artificers efforts especially in relation to the Exemplar Project
Criteria 4 – Action Learning - Importance of learning from and with the above and helping others do the same.

In summary, then the above four criteria collectively represent 'hand thinking' and in as much as OT is about physical activities organised around a meta project of 'getting my life back together again' then the physicality of 'hand thinking' could well prove critical cp. conventional 'book thinking'.

14. Bureaucracy the down side of interface – It's just not my job – I've done my bit and told my manager

Defining Bureaucracy

Classic bureaucracy is a tool for perpetuating the elite's version of the status quo and may be defined as (1) hierarchy with (2) regimentation based on (3) sharply defined lines of control and communications. Traditionally these lines are (4) operationalised by rules and regulations travelling downwards while (5) compliance and obeisance in terms of form filling, tax or infringement payments travel upwards. There is upon pain of punitive discipline (6) no lateral or interface communication, (7) nor is there any novel 'discovery' information other than that requested on feedback and strategic planning forms, travelling upwards. We have all heard of the complaint that 'one Department does not know what the other is doing'. Furthermore (8) power is positional cp. relational and (9) control is quasi-judicially precedent focused (10) overwhelmingly directed at people, and is (11) punitive with rewards seen as the absence thereof.

Power then is codified by control, unquestioning upwards, loyalty to 'management' and as we explore below policing of interface and sine interface at the ground of base layer officer level is proscribed interface becomes one dimension of power over in that to communicate across departments one has first to go up to senior management then across then down to ones counterpart officer.

For instance it is reported that in many military organisations for instance Japan's during the Second Wold War – orders were not explained to subordinates, officers did not discuss anything with their men – only issue orders which had to be obeyed to the letter. Unit did not communicate or interface with unit other than in order to implement the order from above. In this way through compliance in the classic bureaucratic sense the Japanese senior command had very little information on the success of its strategies or for that matter the usefulness of its weapons.

Bureaucracy and it's centrally planned Interface

In a planning sense the central planner issues tasks which then organises and regulates interface. And it's not the job of 'operatives' to make lateral connections or concerns or to voice them in short interface doesn't matter. Well this may have worked for the inventers of bureaucracy the Romans when the task was straight forward e.g. take that town and the people to do it were under your direct control and the technology of war and social conditions were relatively stable. Around the 3rd CBC a Roman foot soldiers salary stayed the same for 300 years at 30 denarii per year (but the soldier got a lot older). Nowadays the world does not stay stable for 30 days let alone 30 years, as with the motto of the armed forces 'ours not to reason why ours but to do (as told from above) and die.'

Yet it is this lateral linking at ground level that is so much part of action and, if I may say, the 'ordinary' life of a citizen that behoves us when we see something not right elsewhere we speak up and seek to have the matter rectified. Ground level of the ordinary citizen is where the policies of the elite policy planners outwork themselves.

Recent examples of bureaucracy being used to justify the 'it's not my job' to help others

I still find the following situations intriguing in terms of how can perfectly competent, well meaning individuals fail so comprehensively to think let alone act laterally.

(1) 1979 – **Aviation** - Erebus here Background reading for the RCADIC paper. The results of a Royal Commission into the crash of Air New Zealand's DC-10 flight (TE 910) into Mt. Erebus in the Antarctic - on the 27th November 1979 - killing all 257 on board. Mahon (1985).

In the ensuing Royal Commission no one not even the royal commissioner himself thought that hey the pilot should have been looking for big rocky things pointing up. The pilot was following co-ordinates coded into the flight controller and the plane was on auto pilot. It's just that the co-ordinates were changed before the flight took off, by ground control without telling the pilot. In short the pilot if he were alive today could well have said '**it wasn't my job** to (a) check the co-ordinates or (b) to look out for big rocky things pointing up with the latter would have to be the most classic case of interface I can imagine. And bureaucratically speaking he would be right'.

(2) 1989 - ADIC – **Aboriginal Deaths In Custody** – it was found that one reason for the deaths was not overt violence on the part of the arresting officers but rather that the interface between the arrested indigenous person and the jail cell were never considered. Almost without exception the 'crimes' were and are basic offences i.e. alcohol abuse and related violence. Interface both interface-cultural i.e. withdrawal from the community in this sense was simply horrific and outside tribal systems of justice as well as interface-logistical i.e. hanging points within cells. The key recommendations of this $500m Royal Commission involved mandating interface i.e. cameras in jail cells, 24 hr suicide watch, videoing interviews etc. all this to address the bureaucratically correct view that it **wasn't the job** of prison officers expressly to watch for people hanging themselves or places where they could.

(3) 01to07-2005 – **Health** - In Queensland in a provincial coastal hospital over several years to early 2005 upwards of 100 people were killed by a particularly incompetent doctor. In the subsequent Royal Commission it turns out that many workers were seeking interface horizontally and vertically to warn of the murderous activities of the particular doctor however they were ridiculed and told to go and do their job i.e. comply or they would 'suffer' the consequences. In one particularly outstanding instance a senior medical officer when asked why he had not alerted authorities of the deaths said '**it was not my job'**. Note he knew of the deaths and was expressed concern therefore but it was not his job!!

(4) 2004/5 – **Justice** - Di Fingleton – The Queensland chief magistrate who was jailed for seeking to influence a witness when she sought to discipline a subordinate magistrate over supporting a colleague who was appealing against her (Fingleton's) decision to transfer her to the Mt. Isa circuit as arguably there was and is a shortage of professionals e.g. magistrates, doctors, solicitors etc. in the bush.   The chief justice of Queensland when interviewed about the immunity indicated that he was aware of this but **did not consider it his job** to inform the trial judge in this regard. Admittedly he later 'modified' his story to be he did not consider the immunity from prosecution for Judges and Magistrates to apply in this case.

(5) 07-2005 – **Politics** - The Premier of Queensland indicated that the combination of major blunders by various departments eg Justice, Main Roads (laying a dangerously slippery type of bitumen), and Health was an instance of the Departments failing their ministers. He added somewhat belated and secondarily 'and the people of Queensland'. Consequently the purpose of bureaucracies is to serve the people at the top not the citizens at the bottom. People's, indeed innocent citizens, deaths did not disturb him primarily; it was the failure of the bureaucracies to serve their ministers that disturbed him. He

expressed an intention to expect more from the Departments. So he is in effect arguing that it is **not his job** nor his ministers but the bureaucracies to serve the people of Queensland.

15. From Social Capital to Creactive Capital– re-visioning 'techne' or extending 'technology'?

Today many extensions of this dichotomy are to be found in the guise of cognitive structures such as 'social technology', 'social capital', 'soft technology', 'community capability' and the like. [34] All have the effect of applying to social interaction the rigours of natural science in seeking the construction of an 'improved' society in which people can feel at ease and substantial, thereby reifying the Marxian divide between techne and technology. More appropriate terms however, would be 'social techne' or 'creative capital' or even 'creactive capital'. Intriguingly while not acknowledging the importance of 'techne' as per for instance Gibson and Ingold (1993), Jin (2005) does strongly maintain that Social Technology is cross disciplinary cp. Hard Technology which is field specific. Consequently interface, design and values figure strongly therein.

In fact Florida (2003:267-69) argues that the concept of social capital may well have been oversold and that mutual aid in the community is pretty stable however the involvement in conventional community organisations is dropping it is increasing in newer less formalised ones. Intriguingly the concept of social capital has now been transformed in recognition that it was essentially a static networked concept that could limit agency and authors such as Florida (2003:267) have suggested it be replaced by creative capital. Florida means creative and innovative and as such his conceptualisation of creativity has much in common with artificing. In this sense Artificer Learners can be seen as one group of 'cultural creatives' Florida (2003:81) who have sifted from 'survival and compliance' to 'thrival and self expression'. Florida (2003:273) argues that of the three concepts: social capital, human capital and creative capital the latter is by far the best in explaining regional economic development whereas social capital often goes in the opposite direction.

Almost to fault modern-day social technologies are conceptualised as external technologies not techne and thus envision the restructuring of society and social institutions as the prima mobile of social change and see the need for techne to enhance the skills such as deliberation, civic participation, governance groups, action learning circles etc. for the ordinary citizen as at best unnecessary.

16. Atavistic Social Evolution and Sustainable Development

The misfortune of modern society for Jin, lies in the comparison of the '*outrageous rate of development of natural/physical technologies and the backward development of social technologies'*. 1955 Misumi Jyuji a Japanese scholar. [Quoted in Jin (2005:26-27)] Indeed Jin argues strongly that this lag between the two general domains of science and

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[34] For instance *social technology* tends to apply hard science (yang) to social issues , *social capital* tends to appropriates humanness as capital an economic ratiocination of positivist origin, yet the term does allow for a type of 'collective goodwill' relevant to techne and the potential for collective Artificer Learning, *soft technology* (yin) tends to apply soft systems such as management and organisational theories to industrial research, development and production for the next Industrial (Soft) Revolution – Jin (2005), *community capability* tends to look at developing 'capability' without 'content' a form of 'agency without action' approach. All of these however can be relevant in particular circumstances and indicate a certain collective sensibility to regain the human within the social. [For more on the Yang/Yin dichotomy and its application to hard/soft technologies respectively please see Jin (2005:217]

Two approaches which come closest to 'techne' and Artificer Learning in social systems as envisioned in this book, are in my view Soft Systems Methodology [Checkland (2005), Checkland and Scholes (1999)] and Socio-technical systems [Emery (1993)] however neither of these approaches, though relevant to the big picture, are first and foremost whole systems based approaches are not, in my view, primarily oriented to give expression of the agency of the individual contributor/worker.

technology has become a (major) bottleneck for sustainable socio-economic development and she regrets that 'progress in the social sciences has lagged far behind the physical sciences. Indeed it could be argued indicatively that hard technological change is moving say up to 1,000,000 times physical evolution and even worse that social evolution is going backwards. And yet it is in the systems of social governance that urgent change is required to sustain any move to sustainable development.

Bushie Exemplar Project Evaluation

Project evaluation is at the heart of what a Artificer is about. Such evaluation has links to:
- Efficacy (fitness for the customer in use)
- Professional review (peer and personal), as well
- The technological (precision and engineering innovation) and,
- Arts (ascetics) arenas.

Evaluation systems are readily available for each of these facets.

Systems of evaluation that are not useable is for instance are the existing methods that are textually based e.g. refereeing, seeing academic worth as a product of journal (textual) publication, seeing the exemplar project as an 'invention' or a direct money making milch cow. The academic world has had centuries to refine its system of assessment by text of text with text and almost no experience of anything beyond text. In many ways academia has become a dumbed down sheltered text shop. One technique that has proved useful is triangulation that is three examiners for a thesis – evaluation by peers of one's journeyman's piece i.e. ones thesis that becomes ones masterpiece.

In the arenas of technology and artiste development and expression agency and integrity are respected. Furthermore the project has to exist in the 'real world' in some form e.g. as an art form, festival, play, computer, manufacturing process, boat, building etc.

Other evaluation criteria are in line with the criteria established for a bushie project. For example the categories emerging from the grounded theory research project are:
1. **Exemplar Project** (EP) – inc. idea, design and implementation, further refinements of this criteria for evaluation include the EP's (1) efficiency, (2) its effectiveness (3) its efficacy and (4) its interface and finally (5) its X factor and (6) its operating environment simple/complicated/complex/chaotic from Dave Snowden's work (see previous section)
2. **Social Holon** – seeing the exemplar project as a sub set of a social holon and determining to what extent it contributes thereto
3. **Global Problematique (GP)** – having the exemplar project respond to a need from the GP
4. **Action Learning** – leaning by doing thus braiding thinking and doing via. the exemplar project – learning's for instance can be recorded in a learning insights journal then coded for instance using Grounded Theory in an overall context of Reflective Praxis as an Action Research Methodology as in the case of this research project

This somewhat basic taxonomy has been used, for example, to evaluate the bushie exemplar projects as listed in the bushie bio-data chapter – Chapter 6 (above). In short evaluation will be challenging however hardly impossible. A crucial element in evaluation is the efficaciousness of interface.

Chapter 12 – Post Modernism - moving from Poststructuralism to Postconceputalism: an emergent role for the Artificer and the Mimeosphere

Here we find that the structure of modern society is profoundly oriented to maintaining the status quo power elite through bureaucracy and economic imperialism, agency either collective or individual in response to such concentrations of power are often violently resisted. One may see the present 'war on terror' in this structuralist light. At an ontological level the structualist opposition of thinking and doing are thus maintained and little questioning occurs officially as to the efficacy of the 'doing' or even different systems of 'the doing' only that the conceptual or noospheric aim of 'ridding the world of a tyrant' triumphs.

In a sense structuralism herein described produces what may be seen in post modern terms as a crisis of modernity as modernities espouses humanitarian values derived from 'enlightenment' and 'universal education' demonstrably fails, and in a post scructualist response we see the emergence of sites of dissent in regard to remaking the status quo structure that post modernism has so adequately critiqued.

It is hoped that the following list of sites of dissent then is one small step in this direction. Post structuralism, possibly more correctly called for this e-book is post conceptualism, if not post modernism at least allows for enactment itself to be a crucial site of dissent, with physiosphere being a site of dissent from the Noosphere for instance through the creation and prototyping of Artificer Exemplar projects inc. many of the Postconceptualist (PC) paintings of artists such as Robert Pope (1988), (2005); Pope's work is explicated somewhat in Inayatullah and Wildman (1998).

The Artificer as a site for Poststructualist Dissents: an emergent epistemic basis for Postconceptualism

In one sense the bushie is part mechanic, part artificer, part mutualist and part anarchist. The concept of Artificer can provide a site for dissent in today's hyper-regulated corporatised world.

Some arenas where Bushiness can be a site for dissent from and with today's world are:
(1) In this hyper regulated world **agency** is regulated out of the question even to the point of the systems pre-determination of significant levels of consumer choice cp. home grown/informal options.

(2) **Interface** matters and citizens have a right to manage this site. The present structure of much interface is being removed by government fiat as Government regulations compel us to consume the products and services of the corporate state to which it has become handmaiden

(3) Slowly all sites for **prosumerism** of individual agency in producing what they consume are being rendered illegal. Selling un-pasteurised milk is now illegal (after untold millennia of only having this type of milk available.

(4) As we seek to manage the interfaces that are crucial for a human lifestyle we realise just how little power we now have as citizens let alone **citizen activists**. Indeed how few people even consider the concept of citizen let alone activist let alone bushie as relevant

nowadays, very few indeed. Rather it is about 'managing community engagement' and we as citizens don't seen the 'citizens rights' links at systems levels between bans of fishing, bee-keeping and riding etc.

(5) Bushiness is also about '**choosing or even acting, ahead wisely'** futuring or parhairessia in ancient Greek terms. In modern English or contemporary public administration we have no such word that indicates a practical proactive wisdom in social innovation

 (6) Furthermore in today's demarcated skill differentiated, division of laboured type economy and society with vertical and horizontal differentiation we see on a regular basis the **lacunae between public figures espoused and practiced ethics**. In this sense Artificer stands relatively uniquely in practically integrating personal integrity and system ethics through the exemplar project

(7) As a counter to the corrosive dominance of compartmentalisation, deconstructionism and analysis as well as post modern and cognoscenti textual totalisation all within the noosphere, bushiness represents a site for individual practical physiosphereical **reconstruction,** interface **and synthesis** where thinking and doing are braided and a person is not separated/alienated from the results of their agency.

(8) **Will sentient technology be smarter/wiser than us** e.g. Bush, Cheny and Rumsfeld? This technology has imbibed an algorithm that is derived from the instrumental f/right wing ideology that stands behind BCR!! and their corporate buddies – what other?

We see this modelled in Iraq over the past four years where the technology of the US is thantos i.e. destructive kinetic entropic that is now the rationale behind the substantial amount of semi-sentient technology they are employing. We have also seen this in Palestine. It doesn't matter that they aren't as 'deep or wise' as us they will just 'terminate with attitude' see the above cases families and groups killed and maimed and weddings blown up because they were living in the vicinity of a suspect. If you think the algorithms in sentient technology will come from somewhere else and be nice and warm and fuzzy just tell me who and where and lets join them!!!!!

The Artificer then is one small site for dissent to this sentient technology concern as well as the other 7 dissents.

Beyond Poststructualism – towards a Postconceptualism

This highlights a crucial operational issue that emerges from a view that it is thinking not doing that is prime. Thus because we obsess about what we 'think' when we 'do' we often and quite naively reinscribes the status quo i.e. we use bureaucracies (hierarchy and regimentation), a response that is now thousands of years old and in the context of a participatory world well past its use by date. In short we have great difficulty in using actioning systems that don't reinscribe the very problem we are seeking to eliminate. Nowadays this has become an enantiodromiaic lacunae (a space where the opposite of what is set out to achieve occurs – 'action of theory') particularly for academics and so we in trying to eliminate terrorism we create opportunities therefore. Here subtlety is called for: what we want is an enactment process for theory that doesn't necessarily reinscribe the status quo.

 This I have called a physiospheric action theory (how action can occur in the real world in order to achieve ones intent – or postconceptualism) which is quite different yet related to the noosphereic theory of action which as its name suggests remains cognitive or even

worse a cognitive speculation about cognitive speculation. There is nothing 'inherently wrong' with the latter if one is not actually trying to do anything in the world around us.

From Industrial Revolution to Artificer Revolution

Here we are moving in the field of praxis as poietis beyond either thinking or doing. Here the either or vision of the excluded middle so PC is not about mindless activists or enfeebled brainiacs, rather it is about 'either and that' is the retroductive interaction and braiding of both. Wildman (2002a). The Industrial Revolution has moved into the Information Revolution and now the GNR (Genetic Nanotechnology and Robotic) revolution which in many regards is close to giving us sentient technology.

Yet we have ended up as 'dumbed down' powerless consumers in hypermarkets doing 'therapeutic shopping' for goods designed by others made in third world sweat shops and advertised by the corporates in order to shape our preferences, and all the time regulated by fascist government punitive regulation. Sound a bit like animal farm? Sure does!! This e-book argues we need to move from this post industrial wilderness to an Artificer Revolution.

Why physiospheric 'action theory' and 'action of action' are crucially needed today as part of the Artificers tool box cp. the existing noospheric obsession with 'theory of theory'

So we have the typical critiques of bushies (1) not abstract i.e. too concrete i.e. too physiospheric and not sufficiently noospheric; (2) too concerned with how the real world fits together i.e. the interfaces and the significance and adjustment (action of action) and (3) 'Jack of all trades Master of none' when really for a true bushie it is 'Crackerjack of key trades and Master of their interface'. Crackerjack (outstanding in quality or ability) here refers to (1) the person, (2) the product and (3) the process – in all a most Artificer type term. Crackerjack in actuality is code for someone who has developed an efficacious 'action theory' and is worth listening to about how to get actual change done.

Post modernism and the Bushy via. the application of Poststructural Analysis Tools

Historically situating the Artificer

It is important to state clearly that the concept of Artificer and Artisan predates, and therefore should be conceptually situated prior to, the emergence of the Industrial Revolution. The concepts even predate the English speaking word by at least two centuries and can be traced millennia BCE to Egypt.[35,36]

From the earliest times, in Egypt and Babylon, training in craft skills was organised to maintain an adequate number of craftsmen. The Code of Hammurabi of Babylon, which

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[35] Having its origins as a discrete language in the early 1300's the English as a language we would recognise today would take another two centuries.

[36] Furthermore as an aside the enlightenment artisan drew his or her wisdom line from, among others, the Roman Empire and in turn the Egyptian, Babylon and Sumerian (6000BCE) empires that predated Egypt. At this juncture I do not wish to make too much of the perspective of Artificer as having its roots pre-enlightenment. This is at best, however, a moot point as almost all manifestations of skills today are severely lensed through the enlightenments bastard child – Taylorism and Skinnerism. Such that skills as lensed through globalisation's and behaviourism respectively, HRD dimension of competency based terror/training. Nor do I wish to attribute any or all of my concepts of bush mechanic or artificer developed in this work to these historical roots. *Using grounded theory the concept of artificer learning emerged directly from my experience over the decade 1994-2004 and I provide these historical and other associations for your information and interest in some parallel and possibly related concepts.*

dates from the 18th century BCE, required artisans to teach their crafts to the next generation. In Rome and other ancient societies, many craftsmen were slaves, but, in the later years of the Roman Empire, slaves as craftsmen began to become 'free men' and thus citizens and to organise into independent collegia intended to uphold the standards of their trades. Ultimately some centuries as the feudal system broke up in Europe these 'free men' learnt trades and became for instance in the case of masons 'free masons' and so forth.

By the 13th century a similar practice had emerged in Western Europe in the form of craft guilds. Guild members supervised the product quality, methods of production, and work conditions for each occupational group in a town. The guilds were controlled by the master craftsmen who bore many resemblances to the artificer explicated in this research project. The recruit entered the guild after completing his training as an apprentice—a period that commonly lasted seven years. It was a system suited to domestic industry, with the master working in his own premises alongside his assistants. This created something of an artificial family relationship, in that the articles of apprenticeship took the place of kinship.

So I am at some pains to emphasise the concept of craftsman, tradesman, journeyman, apprentice, artisan and artificer ALL predate industrialism and its most virulent form late capitalism of the 21st century by century's even millennia. The industrial revolution has overwritten this with its own indelible text about the inevitability of its particular brand of progress, the primacy of economic efficiency, commercialisation of all aspects and walks of life, 'the' moral imperative is today to maximise profits not to do the common good, the glories of globalisation all in all the triumph of modern alchemy or modernity are found today in the concept of for instance, Pax Americana.

Distance

Sohail Inayatullah (1998), (2004) uses a poststructural method of analysis within the school of critical futures called Causal Layered Analysis (CLA) to layer our understanding of everyday events. Poststructural methods such as CLA ask us to step back from the stream of our current day status quo time reality and to refocus our locus of authenticity of our inquiry on the basis of alternative understanding of our presents and pasts. For example – which scenarios make the present remarkable? Which situate the present? Which offer a different past, and a different tomorrow? CLA does this in four layers (1) litany - the day to day emerged events; (2) Systems – the socio economic systems that generate the events; (3) world view – the mind set that the systems stand on and (4) Metaphor – the story that f/holds the above together for it to have meaning. [see Ch 1 – stage 2b for further information on CLA)

The BM scenario allows distancing through:
- Problematisation the present status quo scenarios as unsustainable on a skill and social holon levels?
- Situatisation the present as a direct outcome of globalisation and late capitalism within the context of the usurpation of the enlightenment by greed not need as creed
- Perspectivisation allows another perspective to be drawn on the modernity problem and shows us how close another possibility got to becoming reality. Perhaps there is yet unrealised potential in the Artificer concept and or there are yet other constructive perspectives to be taken on modernity
- Offering a different though difficult to achieve tomorrow through its ability to generate exemplar projects

Genealogy

Genealogy asks about the origins of what is, and about what voices have been silenced and about what might have been. A BM approach poststructurally analysed in this way suggests that the voices of the bushie have certainly been silenced as have those that call

for economic self sufficiency. Bushies have become the latest form of social dinosaur. What might have been, to an extent was and can still be, achieved is a post village slow local self sufficient village more morally, socially and economically self sustainable mutual aid communities interlinked by the web and decision-making.

In a parallel development the voice of the voice of the community economy bushie has also been silenced. In the late 80's at the same time as the Australian National Training Reform Agenda (ANTRA) – reductionist (analytical not synthetical), positivist (objectivity prised above all), rationalist (the logic of linear sequential cause and effect in a simple context), globalised (non allowance for regional/cultural differentials), Taylorist (division of labour), Skinnerian (behaviour first and last) (the worst of worst of the classic western flatland view of the world) approach to the HRD dimension of 'international competitiveness' was being established a national inquiry into a bushie type approach to local economy development was established in Australia.

Called the National Advisory Group into Local Employment Initiatives (NAGLEI) the group, on which I was the Queensland Government Representative, commissioned various reports on the artificing of such LEI entities and produced a final report [NAGLEI (1987)] which went to Federal cabinet on the 27th July 1988, it was not endorsed or approved. Ultimately ANTRA held sway, as indeed globalisation has become the dominating meta-narrative or myth in CLA terms that has carried all before it. And over a period of a matter of a generation essentially all LEI schemes and projects ceased around Australia as did effectively ACE and other informal employment, education and training initiatives, on which bushies depend.

The bushie in this sense appears doomed by globalisation and the Taylorist, Skinnerian approach (no thinking only doing) to economic skill capability and capital development.

Reperspectiving knowledge – Restructuring praxis

The concept of artificer learning insists that we recognise the reordering of knowledge that has occurred away from broad interfaced experience to Taylorised packets of labour skill competence 'Skinnerised' through being measured literally and only behaviourally called Competency Based Training (CBT). Emerging in the late 80's in Australia and the human resource sub set of globalisation the approach has removed the last bastions of legitimisation and decimated the population of Artificers in Australia and removed any legitimacy and serious recognition thereof. Knowledge reordering has had catastrophic results for this species of tradesman. Here we see the triumph of the reductionist, behaviourist, division of labour, segmentalist, analytical mind set of the lobotomised Enlightenment. All wrapped in a regimented, bureaucratised organisational quasi academic framework. [37]

Post-Post-Modernism as Performativism - a gleam of hope?

In his book on *City as landscape: a post-postmodern view of design and planning* (E&F Spon, 1986], Tom Turner argues that: The modernist age, of 'one way, one truth, one city', is dead and gone, and even the postmodernist age of 'anything goes' and 'critique reigns supreme' is on the way out. Reason, especially of the Universal Western kind, can take us a long way, but it has limits. Let us embrace post-postmodernism—and pray for a better name.

'Performatism' was coined by Raoul Eshelman, as a term to describe or replace the term 'Post-Postmodernism'. He goes on to describe it as 'a new epoch in which subject, sign, and thing come together in ways that create an aesthetic experience of transcendency'...a

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[37] See Appendix D for a brief overview of further attributes of the bushie

place where meaning is created in ways that are, positive, intentional and potentially actional. A contemporary example may be the annual <mark>Burning Man</mark> (http://en.wikipedia.org/wiki/Burning_Man) festival that attracted 39,000 people in 2006, in 2007 the theme is <mark>Green Man</mark> (http://burningman.com/art_of_burningman/bm07_theme.html) and <mark>Cooling Man</mark>* (http://www.coolingman.org/) here we have a footprint of sustainability required by Burning Man festivals. [A group of San Francisco scientists are calculating how much the event will contribute to global warming. They have created the CoolingMan organisation and have implemented a system that will calculate how much greenhouse gases Burning Man participants will create. The project has inspired many to look for positive ways to get involved in the global warming and climate change movements by seeking out solutions. The Cooling Man website suggests ways that Burners may offset the damage by planting trees or investing in alternative energy solutions. Since this is a new development, the impact won't be fully realized until Burning Man 2007, a year when ecological concerns will also be explored through the art theme of 'The Green Man' - note the link to the Green Knight and Hermes in esoteric terms and in exoteric terms hermeneutical philosophy]

Mikhail Epstein also argues that 'Post-postmodernism witnesses the re-birth of utopia after its own death, after its subjection to postmodernism's severe scepticism, relativism and its anti-utopian consciousness'. Post-postmodernism has also been described as renewed faith. [From Wiki – adapted PW]. PPM may well be linked to Don Beck's yellow viz. ecological spiral in his spiral dynamics. [Beck and Cowan (1996)].

One can see however that Post-Post-Modernism in this sense, although it represents the liberation of the intellect from critical epistem and allows the possibility of the real, still does not engage the real in the sense of action. PPM remains tragically noospheric. So we can say at least it offers a gleam of hope that may shine on the exemplar project, especially in that PPM offers renewed faith in utopia. PPM'ers however will seldom see it within their direct epistemic remit to undertake the direct, personal and deep actions required to enact an Exemplar Project in the 'real' world of the lived life.

What comes next - Post Post Post Modernism? Will this be actional? Do we have time to wait to find out? Ultimately and unfortunately in response to both questions I suspect the answer is 'No'. PM was born of the noosphere and will remain there attached by its critical theory epistem umbilical cord, contributing to validation of the exemplar project as with Burning Man's mutant cars, but still as a spectator not in the action itself to generate the cars .

Indicators of the potential emergent nature of the Mimeosphere

Maturana and the potential for a mimeosphere

The development of the mimetic learning insight has led me to the articulation of the notion of artificer learning and the Artificer as differentiated from conventional learning systems including to an extent Action Learning. This insight has compelled me to generate a conceptual frame that can allow me to say what I needed to say and I believed needed to be said. Maturana (1970:15). The critical issues is to see mimesis as a process of developing manual dexterity and its manifestations as concomitant with increased understanding of the task at hand and the underlying process.

This requires a certain autopoietic capability on the part of the individual. Mimetics is more than miming, more than copying – blind mimicking as an animal may do in copying some survival related behaviour in its mother, it is copying with dexterity and understanding. Intriguingly manual dexterity is still recognised as an attribute in Western cultures as a sort of repair process for the brain, for instance in cases of brain injury, stroke, severe arthritis and a narrowly conceptualised form of mimetics for severely intellectually retarded people.

Developing this conceptual frame which is the Artificer Learner and Artificer has been a particularly drawn out process in my life. I needed a conceptual frame wherein physiosphere and noosphere are like systolic and diastolic contributions within the one frame. Many authors and principles approach this end such as Dewey (1897) and Kolb (1984) and in particular Maturana (1970) and Wilson (1998).

For Maturana whenever the adequate dynamic structural conditions occur, autopoiesis (self organisation at the molecular level which is co-determinate of and in living systems) will arise 'spontaneously' and a living system will appear as if out of nowhere Maturana (1970:19).   For me this suggests that in one sees the four principles of Artificer Learning as 'adequate structural conditions' then self organising and relating 'structurally coupled' regimes of artificer learners may be an eventuality. This would contribute to what may be termed 'the mimeosphere.'

In autopoiesis it is the whole organism that is conceived as reaching equilibrium, but with reference to the whole organism and its broader environment as a holon, not uniquely its subsystems (digestion, respiration, elimination etc). In this way it has relation to gestalt psychology and psychotherapy as well as Lovelock's work (Gaia).

The emergence of the Yin Mimeosphere

The potentially integrative nature of the so-called mimeosphere, in this story within the context of a particular *Tao* maybe to a certain extent seen in the story told by Chinese philosopher Chuang Tzu (360BC)about a famous Chinese butcher/cook-philosopher who as a master butcher who was so skilful that he never had to sharpen his knife. [http://www.hku.hk/philodep/ch/zhuang.htm]

Cook Ting's had a hold on a particular way of doing one thing. Ting's way is developing. He continues to progress in pursuing his skill by tracing his *tao* to points beyond his previous training. When he comes to a hard part, he has to pay attention, make distinctions, try them out and then move on. This supports the view that developing skill eventually goes beyond what we can explain with concepts, distinctions, or language. The focus required for a superb performance may not be fully compatible with a deliberating Western style self-consciousness that tends to separate behaviour from concept.

The Butcher does not say that he began at a particular level of skill. He does not report any sudden conversion where some mystical insight flowed into him. He does not say that he could just get in tune with the absolute *Tao of the meat or the dish* and become a master butcher automatically. And he does not hint that by being a master butcher, he is in command of all the skills of life.

Yet he could not directly use his level of awareness at will to become a master jet pilot or a seamstress. His is not an account of some absolute, single, prior *tao* but of the effect of mastering some particular Tao [see subsequent section]. An extract may enlighten: Cook Ting was slicing up an oxen for Lord Wenhui. At every push of his hand, every angle of his shoulder, every step with his feet, every bend of his knee - zip! zoop! He slithered the knife along with a zing, and all was in perfect rhythm, as though he were dancing to Mulberry Grove or keeping time as in Qingshou music.

'Ah, this is marvellous!' said Lord Wenhui. 'Imagine skill reaching such heights!'

Cook Ting laid down his knife and replied, 'What I care about is a *tao* which advances my skill. When first I began cutting up oxen, I could see nothing that was not ox. After three years, I never saw a whole ox. And now I go at it by spirit and do see the ox with my eyes.

Controlling **knowledge has stopped** and through the tao my spirit wills the performance. I depend on the natural makeup, cut through the creases, guide through fissures. I depend on things as they are. So I never touch the smallest ligament or tendon, much less bone.'

We all recognise the sense of responsive awareness which seems to suspend self-other consciousness. In this sense the Artificer and Artificer Learner may be seen as expressions of a long suppressed self-organising Yin learning system. The Exemplar Project then may be seen as combining both Yin and Yang learning principles and thus in some small and stumbling way be a faded expression of the Taiji. Indeed Chuang Tzu maintains that indeed we all may achieve this absorption in the whole through finely honed useful performance i.e. achieving skill at a particular Tao balanced *ch'eng hsin* . For instance with -dancing, skating, playing music, butchering, chopping logic, lovemaking, skiing, using language, programming computers, throwing pottery, or cooking.

At the highest levels of skill, we reach a point where we seem to transcend our own behaviour, our own learning, even our own self-consciousness. What once felt like we had a skill developing inside us, then we felt we were beginning to feel simpatico with the skill – a Tao, then we felt like control from the natural structure of things – the Tao. Our normal ability to respond to complex situations bypasses conscious processing. In our skilled actions, we have internalised a heightened sensitivity to the context by blending it with content and meaning in wisdom.

The Tao of the Mimeosphere

In Taoism, the basic, eternal principle of the universe that transcends reality and is the source of being, non-being, and change, whereas in Confucianism, the right manner of human activity and virtuous conduct seen as stemming from universal criteria and ideals governing right, wrong, and other categories of existence. For instance describing Tao, the following analogy has been used; imagine a person walking on a road. A bamboo pole is carried, resting on the person's shoulder. On the end of the pole two buckets are suspended. The buckets are likened to yin and yang. The pole is Taiji, the entity integrating the two. The road is Tao, and the person the disciple seeking wisdom through practice of the balance. The Taiji is understood to be the highest conceivable principle, that from which existence flows.

In contemporary terms, the Taiji is the infinite, essential, and fundamental principle of evolutionary change that actualises all potential states of being through the self-organising integration of complementary existential polarities. More simply, it is the co-substantial union of yin and yang, the two opposing qualities of all things i.e. the essence of the Artificer is seen as an expression of the Yin energies.   In order for 'hot' to exist, so must 'cold.' The existence of 'hot,' in fact, is wholly dependent on the existence of 'cold' and ultimately arises from it, just as the existence of 'cold' in turn arises from that of 'hot' and is wholly dependent thereupon. **Note** that as the highest conceivable principle, the Taiji is still superseded by the Tao itself, the inconceivable essence of reality, which is by nature ineffable and beyond description. This 'ultimate reality' is that which cannot be named, although through conceptualisations such as the Taiji, the Tao can be approached.

Here the Taiji represents the means of achieving balance through the holder person – this balance then at centre is 'both A and not A'. In short Yin Yang takes us beyond Aristotles dilemma of 'A cannot be not A' thus we have today the theory of the excluded middle say with two overlapping sets A and B. In the overlapping section which Aristotle excludes 'A is not A' as it is A and B and likewise for B. Yet in the same somewhat paradoxical sense is where Chuang Tzu draws a more favourable portrait of specialisation. His example is consistent with **Aristotle's observation that human life offers no more fulfilling activity than the exercise of some acquired skill**. Highly honed skills requiring considerable

manual dexterity, invite paradoxical, almost mystical, description. In performance we seem to experience a unity of actor and action. Such practice is a way of losing oneself as one might in contemplation or in a trance. The accuracy of our own actions sometimes mystify us. We do not understand how we did it -we certainly cannot explain it to others. [and thus Chuang Tzu's account of the master butcher]

Here Chuang Tzu's analysis of the *ch'eng hsin* (the completed and skilful moral heart-mind) echoes Lao Tzu's analysis of knowledge as unconsciously acquired in the very process of learning language and its associated actions. Guidance towards such *ch'eng hsin* can include copying, pointing, and modelling. EG mimetic learning a show and tell and follow approach is embedded in language and its 'use' in enactment.

Chuang Tzu also directs our attention to a potential problem with the glorification of total skill dedication and mastery. We trade any accomplishment at one skill for ineptitude at some other thing. From the hinge ways various perspective, we no more value the world's top chess player than the world's finest jack of all trades. We need not read Chuang Tzu as advocating specialisation per se.

The Mimeosphere as Integration of Interface

An emergent key attribute of the 'Exemplar Project' is interface that is the operational integration of the various components in the project including not only the integration of thinking and doing, and also the linking or interfacing of various 'doings' i.e. the various components that together comprise the Exemplar Project.. So the Mimeoshpere or artificeosphere represents the space within which such artificer interface occurs, and as 'integration space' it allows the operationalisation of the various components of interface as discussed above in Ch7 BMP1. Cast where the Physiosphere (P) and Noosphere (N) overlap the Mimeosphere or artificeosphere reaches beyond this overlap to being P+N+X where X stands for Xlemplar Project.

This e-book argues that the Mimeosphere represents a space where a crucial way of learning can occur, which, has been largely overlooked in the past few centuries particularly since the Industrial Revolution. In some ways, and in terms of informal learning, ever fainter mutualist echoes of such a process can be seen today in the ACE (Adult and Community Education), the WEA (Workers Education Associations) and the School's of Arts. Learning systems that are exclusively based on conceptual, cognitive or noospheric activity (which can be referred to as CBL – Concept Based Learning) of thinking and writing have over the past generation tragically become 'totalising' through their integration into the 'globalisation' process with its pervasive commodification of human relations inc. learning and globlaisation's associated emphasis with 'international competitiveness' and Free Trade Agreements. Such emphasis is manifested in relation to skills development through compartmentalised and dissected behaviour in Competency Based Training (CBT).

In CBT micro skills are taught as behaviours to students, for instance fourteen such micro skills being required to pour a cocktail in a bar course – almost a bizarre retro-Taylor/Skinneresque pastiche. These skills are 'taught' in conventional classrooms with conventionally pedagogically trained 'teachers' as behaviours (physisophere) where the student is 'trained' with success at 'mastering' the skill being measured by the student evidencing the correct behaviour three times in a row. Success is not as understanding (noosphere), or critically reflective skills that can from time to time be improved creatively, or as interface (mimeoshpere) with other skills in the sense of the artificer jack of many trades and master of several, nor is training seen as part of an engaged citizens role but rather as simple sub-component behaviours, where critically no synthesis skills are sought or rewarded. Nowhere are component and sub component skills synthesised for instance

into say a small scale 'exemplar project' or 'journeyman's piece' let alone linked to the big picture. In many ways CBT can be called 'Competency Based Training'.

In the fields of Social Sciences (thinking), Vocational Training (doing/behaving) and Adult and Community Education (informal combination of both) the CBL/CBT dichotomised type learning approaches, called by Wilson (1998:295) cephalocentric or theory favouring approaches, have over the past generation come to represent at least 95% of activity. In such a view a concentration on theory is totalising and implementation becomes mere behaviour, even more critical is that implicit in these categories is their oppositionality and thus fall into the Descartesian trap of 'either-or'/ 'thinking-doing'/ 'manual dexterity-mental dexterity' and we enter the adversarial aspect that influences so much of Western Thinking. Intelligence in terms of 'manual dexterity' which intrinsically is 'either-and' braids the two is considered irrelevant, quaint or at best marginal. Furthermore the artificer view argues with Wilson (1998:296) that manual dexterity is an outworking of cognition and an artificer view maintains that cognition is a 'whole of body experience' where perception and action are braided. Here he admonishes those who would stimulate the curiosity of the child to 'head for the hands' and, I would add, 'play' or 'build a project'.

Situating the Mimeosphere in the Great Chain of Being

Physiosphere – the domain of objects; *Sociosphere* – the domain of social interactions; *Biosphere* – the domain of biological life; *Noosphere* – the domain of ideas; *Theosphere* – the domain of theological/spiritual conceptions; *Cybersphere* – the domain of the internet; *Mimeosphere* – the domain of the artificer manifest in exemplar projects based on manual dexterity with understanding in order to demonstrate a better world is possible. NB: these so called 'exemplar projects' will be collectively 'good' (green towns/cancer cure) or 'bad' (Terminator IV – Artificial Life/nano terrorism/social controls) depending on ones background philosophy.

Wilber puts it best in *Sex, Ecology, Spirituality* (SES) (1995) and *A Brief History of Everything* (1996), lays the groundwork for 'integral' thinking. De-emphasising his earlier emphasis on death anxiety and Atman projects, Wilber now seeks to unite the perennial idea of the *Great Chain of Being*, as informed by spiritual, cultural, social, individual and natural scientific evolutionary concepts, with a four-fold set of distinctions allegedly capable of analysing all phenomena. Drawing on the notion of holons developed by Koestler (1978), Wilber maintains that virtually all phenomena are wholes from one perspective and parts from another. A cell in an organism, for example, is a whole that includes parts, but is also a part of the organism.

Emphasising that holonic evolution generates emergent qualities, Wilber divides the Kosmos into four grand domains: *physiosphere*, *biosphere*, *noosphere* and *theosphere*. The *physiosphere* includes the non-biological features of the universe, including the stars and planets that arose in the billions of years following the Big Bang. The *biosphere*, the domain of life, depends upon the much older and much vaster physiosphere, but involves features that transcend the *physiosphere*. Finally, the biosphere gives rise to the *noosphere*, which includes complex sentient life such as mammals and humans. Again, the *noosphere* both depends on *physiosphere* and biosphere, but also transcends them, by exhibiting emergent characteristics, including self-consciousness, language, and rationality. The *theosphere*, which both includes and transcends the other three domains, refers to dimensions of consciousness that include what is traditionally understood by God.

This chain of being argument is most informative and useful however in differentiating so definitively between *noosphere* and *physiosphere* we run the risk of reinscribing the *thinking and doing* dichotomy. An integration of the two with some elements of

sociosphere may be called as above the *mimeosphere*. For me the concept of *human __being__* has always braided *thinking __and__ doing*.

RIP Bushie[38]

<mark>Chapter 13</mark> - <mark>Intelligent Narrative Play Learning</mark> (INPL)

INPL may be defined as:

> *the use of intelligently directed use of narrative in play drawing from the lived life of the player/student that engages her performatively and figuratively in that she both performs the play and, is introjected into the play's adaptable discovery based learning context and content itself.* Wildman P Q1 2007

INPL is related to, and draws from a suite of related concepts, approaches and theories on learning, approaches such as Action Learning, Activist Learning, Experiential Learning, Discovery Learning and Transformative Learning.

Web based learning methodologies can harness the unique capabilities of the web for enhanced learner interaction and participation. Dator (2002), Wildman (1999), (2000). This chapter explores a specific application of interactive software in computer gaming as an example of the potential of CIT (Communications and Information Technology) as a part of the Artificer process. An application of CIT is Computer Based Gaming (CBG). This modality is extremely popular with youth and young adults inc. for instance LAN (Local Area Network) games. This can be most 'rewarding for developers', for instance a popular computer game can generate turnover equal to a major movie such as the Titanic. This popularity has spawned various genres of games and associated youth sub-cultures.

This chapter looks to analyse this popularity - now vastly senior to conventional schooling as a preferred time allocation of young people and asks Why is this so? What is going on behind the scenes? And: How is this relevant to Artificers?

Gaming the Bushy - Intelligent Narrative Play based Learning (INPL)

Given the constraints of attempting to design educational games for a 'consumer market' already replete with CBG in 3-D environments developed by well-resourced teams of programmers, designers, sound experts, what neither researchers nor educational game-developers have so far been able to do is to create an 'educational game' that offers its players the kind of engaging, immersive play-space in which users want to stay, explore, plan, design, construct, interact, and learn, as they do consistently in commercial games. De Castell and Jenson (2002:2).

So why is attention to the cultural context of gaming left out of accounts on educational research on games? The reality is that gaming is, for all but gamers themselves, not a popular, but in fact historically an *unpopular* even delinquent culture. For those who do not actually play games (significantly, that means most who research and write about them in academic contexts), games represent at best a childish pleasure long since left behind, and at worst a threat to every position on the home front: children obsessed and bewitched, partners distracted and preoccupied, money spent, and time wasted.

Dominant here, then, is an approach to a study of culture that begins from the premise of its negation, and this is why current educational research on games and gaming may not actually tell researchers all they need to know, and why so much of what it does purport to tell them may be mistaken and misleading. De Castell and Jenson (2002:5). Interestingly, this is also very much the pattern followed by *professional* educational game-designers, suggesting that this approach has more to do with the dominant cultural (op)positioning of play and education. Seen from this wider cultural context, it is no surprise that teachers are often vocally opposed to computer-based gaming. For teachers, these games represent not only

something they do not know, but also 'play' something potentially subversive and antithetical to education's purported goals. Play is something regulated and relegated to spaces outside the classroom wherein 'real' serious learning is meant to occur.

Attributes of Intelligent Narrative Play inc. Intelligent Narrative Gaming (from INP to ING)

From 'thrill' to 'skill' rides in today's Theme Parks - cashing in on techne

Today we even find shades of the Artificer and even techne coming into Theme Parks. Long the haunt of complete passivity in the rides and games they offered nowadays Theme Parks are offering 'skill' not only 'thrill' rides. In these sill rides such as wave riding and the like the gamers/players have to develop an actual skill to survive in the physiosphere this means blending thinking and doing much like the original meaning of 'techne' so strongly advocated in this eBook. Still as argued here we have shards of shards of the original concept of techne and as such it is challenging to look forward to see its potential relevance to a world remade in the image of 'homo bio-sapiens'. This is one key reason for the eBook advocating so strongly for Exemplar Projects and youths involvement therein so as to act as a collector (strange) attractor for these disparate skills.

Gaming Caveats: the 'ABC' and '5R's' of early childhood learning

This section argues that we see early childhood education in a vastly different light. In fact we need to reinvent the meaning of ABC to include *Artifice, Belonging and Caring -* through INP; instead of Attitude, Beating others and Compliance. In short aRtifice needs to be added to the '3R's' which become the '5R's' - (1) Reading, (2) wRiting, (3) aRithmic, (4) Ram (computers), (5) aRtifice (viz. ABC above). Indeed it is also interesting that young children can learn advanced maths effortlessly when their other language neural networks are most open (eg 3-5 years). As with other language abilities this ability quickly diminishes with age (post 5 years) for most people.

Here INP becomes ING - Intelligent Narrative Gaming, however design of the basic game heuristic is crucial - a war game V's a love game. As a counterpoint to this however we should remember that these gaming heuristics are conditioning the child often to a rather pro-violence, isolated situation of dispersed gamers, linked by electronic not geographic contiguity. Such games are intensely noospheric and an artificer approach suggests that physiographic action and reflection esp. in the areas of (1) socialisation, (2) mathematics, (3) language development and (4) hand knowledge/dexterity projects, are also vital as a complement to such 'narrowcast' noospheric stimulation. Further some argue even rewire the child's brain (<7) in ways that reduce attention span and encourage flight or fight responses rather than rational deliberation. With these caveats addressed this eBook argues that gaming can provide a cave away from the dumbing down of conventional education.

Attributes of narrative relevant to Intelligent Narrative Play Learning

(1) **Challenge**: Narrative-centred learning can feature challenging tasks of intermediate levels of difficulty, i.e., tasks that are not too easy and not too difficult and these levels of challenge can be changed by the player. Dynamically created narratives can feature problem-solving episodes whose level of difficulty is customized for individual students
(2) **Curiosity**: Narrative-centred learning can stimulate students' curiosity by presenting students with quests that require them to explore intriguing storyworlds and interact with engaging characters

(3) **Control**: Narrative-centred environments can empower students to take control of their learning experiences; they can choose their own paths, both figuratively (through the solution space) and literally (through the storyworld), while being afforded significant guidance crafted specifically for them

(4) **Immersion**: Narrative-centred learning is inherently immersion-based. All narrative elements ranging from plot and characters to suspense and pacing need to be interfaced and can contribute to vivid imaginative experiences

(5) **Fantasy:** The participant enters a fantasy world, generated through the narrative, which can facilitate the suspension of cynicism and disbelief and can thereby involve the release and expression of creativity and ingenuity

(5) **Agency:** The student/gamer as protagonist experiences narrative as introjected participant not as observer, furthermore she interacts with the elements of the plot to create outcomes that validate her agency

(6) **Making Meaning:** In its broader sense use the gaming narrative supplies context based meaning for the participants a little like indigenous dream time stories do for the initiation protocols of the young for instance in Arnhemland and Cape York communities. Mott et al (2000)

(7) **Holistic Knowledge:** knowledge, based on the narrative, is seen as holistic rather than compartmentalised into disciplines etc. This is like web based learning esp. blogs and Wikipedia, where participants contribute to meaning rather than having it fully pre-determined in a linear sequential definition in a sage on page reference text. Meaning here become more floating even fiery orbs of meaning which can be entered on a complex 720degree/spherical basis rather than as simplex definition

(8) **Non ludic play**: INP based learning is directional learning with a purpose focus and task it is not aimless or ludic as in kittens play.

In short, narrative can provide the guidance essential discovery learning and if appropriately articulated also for enactment learning. Mott et al (2006).

Crucial INPL lessons for educational design from gaming

The commercially, financially, and certainly (for boys and men) culturally successful world of electronic gaming, both console-based (i.e. 'Nintendo', 'Sony PlayStation', and'Xbox') and computer-based, can potentially offer important strategies for education. When we compare, for instance, how games 'teach' their tools and techniques to players with the ways classroom-based instruction teaches subject-matter knowledge and skills to students, we see many quite profound differences:

(1) There is no culturally derived opposition of play and education

(2) Gaming deploys agency based interactivity rather than compliance based display and exposition

(3) Gamings' focus is on negotiating an immersive environment rather than on stand-alone task-completion

(4) Games use a narrative into which the students are introjected rather than a pedagogical propositional structure which remains forever 'objective' and separated from the students largely unlinked to their lived or potential future lived lives

(5) The plot structures in commercial gaming builds on this 'lived life' of the players viz. their contemporary cultural knowledge, skills, and critical questions and problems that affect students' lives within and beyond school.

(6) In game play interactivity between players and players and the game narrative replace discrete 'bums on seats' type epistemic/disciplinary structures

(7) Subject positioning and character-formation in game contexts are accomplished through situated role enactment rather than segmented self-representation

(8) Gaming provides for its players a very different politics of engagement that shifts the experience of locus of control from teacher or educational program ('feedback') to the player ('consequences'). Games afford players a greatly enhanced quality and kind of

freedom: the gaming culture encourages and enables solidarity beyond/outside the game (chat rooms, bulletin boards, etc.) *with the player, not the teacher or the program, having autonomy* over the interaction (the degree, kind, with whom, etc.). De Castell and Jenson (2002:6, 9).

(10) Games assume that students/young people can find intense pleasure in the pursuit of 'virtual' knowledge for 'virtual' purposes in their 'actual' lives, yet existing 'educational games' tend to trivialise students' goals, abilities and forms of engagement, and leave little room for their participation in authentic knowledge-generation. De Castell and Jenson (2002:9).

(11) Immersing is a crucial requirement for broad and deep learning as games require both vertical and horizontal dimensions of learning this is also a key attribute of a vertically articulated and integrated learning system eg of Kids AND Adults learning or for instance **community learning** where context is key and unstructured and informal and imbibed

(12) Gaming activities inc. simulated expeditions, experiments, prototype development, simulations, e-conferences, practical dilemmas, role plays, constructing virtual exemplar projects, and technical challenges etc. provide the gamer with simultaneous broad and deep learning challenges - in some ways much like the child provides for himself in early childhood development

(13) Gaming teaches, almost as an ancillary issue, co-operation and creativity or one may even say allows these to be potentiated. Both are crucial for participation in civic society, and indeed provide for Illich's '**tool for conviviality'** Illich (1973)

(14) What gaming like this does *not* try to do is to track users in ways that generate forced and coerced accountability systems and structures pre-scripted by school-based learning practices, outcomes, and goals. The fervour with which testing and tracking systems are insisted upon by educational authorities bent on the pursuit of outcome measures whose value and significance are presumed as an unquestioned good is the greatest impediment to creating the kinds of educational games we have tried to indicate are possible and desirable. This demand for measures and 'indicators' of national educational 'excellence' for economic 'competitiveness' forgets that there is absolutely no educational value in themselves, and much that is lost to educational engagement, by their deployment as essential normative goals (ends in themselves rather than instrumental means to an end) of educational technology

(15) Gaming is not a discrete activity, but a culture and for many people a way of life supported by the games narrative structure, in just the same way that education (although probably not schooling) particularly **vertically and horizontally articulated and integrated** community based education can be

(16) In some ways gaming can provide a sort of self initiation or rite of passage in that it is an activity primarily youth related, discreet from what 'oldies' do and situated within a broader 'cultural context' somewhat like the dreamtime narrative of Indigenous cultures with their multi layered (sometimes up to 7 initiations into the candidates mid 30's)

(17) If we focus on the player as active learner, we might begin to reclaim from a pervasively bureaucratised and increasingly commercialised institution of formal schooling the 'education' it appears increasingly to have abandoned in favour of the development and credentialing of narrowly conceptualised and behaviourally defined job-skills.

Problematising existing so-called 'educational games'

Central among such ubiquitous design parameters for educational games are:

(1) An insistence on **pedagogical developmental assessment** whereby players have to enter the process in a linear manner, at a certain point, usually with pre-requisites and cannot 'move on' in the game until they complete, in linear and lock-step fashion, particular tasks and/or skills

(2) **No** potential within a game for **chance**/luck

(3) **No room for** intuitive leaps or **'twitch-speed'** perception and skill;

(4) Little opportunity for collaboration or individual agency

(5) **Oppositional conception of play and education** with a focus on the latter within the dominant ethos of education as 'imposed curriculum' and imposed infrastructure as 'school' that is classic pedagogy

(6) **Few opportunities for** learning through imitation or **collaboration,** where players can work together through particular challenges

(7) **No recognition for** competence based on **the lived life of the players** viz. their interests, prior abilities, and particular talents

(8) No game-based reason to dwell in and develop familiarity with the game environment; as an attractor itself with ancillary or chance access to say a virtual library

(9) Few opportunities for instant feedback/pleasure/gratification

(10) Educational games are focused on the 'student' and so the context and process of the game or its designer are largely invisible - not so in commercial gaming.

(11) Finally, **educational games are often authoritarian**, bureaucratic, individualist and primarily non-consensual - individual students 'play' themselves and play them because they are told to, the rule system is not one that they have agreed to, and so the constraints of the game do not become something to play within, but something to kick against.

Similarities and differences between gaming and bushying

The sum of all these elements for both the gamer and Artificer, is a form of playful/'hobbyful' immersion within an environment that places the player/bushy in control of his or her character and its activities, although much must be learned within and about that environment in order for players to succeed in the game. Gamers navigate through a complex environment in which learning is incidental to and a by-product of their action and interaction *both within the game environment and beyond it*, as they participate in chat and help-seeking, both on and off-line, to compete, collaborate, discuss, and fantasize about the game and their roles in the worlds it makes real, tangible, and even tactile. This phenomenon is sometimes described as 'stealth learning' whereby players learn subliminally or incidentally through rule structures, tasks, and activities within the game. De Castell and Jenson (2002:6).

Here we see that gaming can:

(1) Include immersion in virtual worlds leading to the virtual construction of artefacts as part of a game further the game records the activities of the players thus itself becoming a type of exemplar artefact to show to other players (Bush Mechanic Principle 1 - **exemplar project**)

(2) Encourage concern for and involvement with other players in an overall social network/holon (Bush Mechanic Principle 2 - **social holon/network**)

(3) Encourage recognition of the broader context/problematique of the overall game (Bush Mechanic Principle 3 - **game problematique**)

(4) All this coming from gaming itself can facilitate co-operative **active mutual aid learning** cp. conventional forms of learning or even worse the conception of vocational education as the mere credentialing of job skills (Bush Mechanic Principle 4 - active learning)

(5) Demonstrate **constructivist learning** where the student is actively involved in initiating, designing and undertaking her learning project which draws from the lived life of the student

(6) Employing an **iterative** process of design viz. conceptualising the game plan, designing learning environments, implementing **prototypes** while learning therefrom

(7) **Gaming however does not enter the physiosphere** and remains essentially a noospheric activity. In fact gaming is the reverse of bushying so to speak and represents the physiosphere and interactions therein through computer generated graphics. As part of a program for ultimate interaction with the physiosphere however gaming, simulations, micro-worlds etc and be an serious part of the introduction.

Links to Early Childhood Learning

Intriguingly all of these similarities link adult learning as per artificer learning/bush mechanicing/androgogy *and* also speak of kids/early childhood learning viz. intelligent narrative play. These similarities thus demonstrate the link between 'pedagogy' writ large to include 'kidagogy', and 'androgogy' as we see in artificer learning.

Gaming as underground Artificering

It may be argued that gaming has kept alive the Artificer tradition during the grade school years of pedagogical tyranny. In a sense learning has had to be reclaimed by youth and thus had to go underground and become virtual to stay real. Notwithstanding the very real need for implementation as per the Artificer model there is a very real 'virtual' sense in which, as explicated above, **gaming, Artificering and kids play share many characteristics**, to the extent that one can be seen as an expression of the other. Further narrative based discovery learning is often more time consuming than didactic pedagogy i.e. one-way text based instruction of the many by one in a class room. [*Sage on Stage* instructing from *Sage on Page* and not about *Sage designing and building Stage*] Nevertheless if done efficaciously with mentoring and peer support INPL viz. gaming can be autopoietic i.e. self organising, thus reducing the requirement for the amount of direct 'class' contact time.

In summary: (1) an exemplar project may be seen as a concretised narrative scenario; (2) gaming as Artificers moving underground so that the human spirit can survive pedagogy and (3) finally narrative provides a homunculus for community learning experiences and thus may assist in generating a predilection to life long adult learning.

Chapter 14 - Amplifying the Bushy: Exploring the extant pragmatic and philosophic relevance of the Artificer Concept

Please note this chapter is highly speculative and is included simply in order to give the reader some sort of idea as to how prominent/numerous the Artificer is today (Table 16 below) and how this is reflected in the labour market and corporate arenas (Table 17 below). These are personal estimations.

The Bushy and the Elite

A key attribute of a Bush Mechanic approach is that **the resource base is intrinsic to the bushy's consciousness and associated day to day activities**. For the **elite** however **the resource base is largely a separate problem from their consciousness.** [NB: Resource here refers to physio&biospheric resources not financial, military, political or noospheric resources]

We see this for instance in Al Gore and the gap between his excellent 'An Inconvenient Truth' and his personal and family use of power for instance his home uses 5to7times the power of an average household in the same area. Typically this is a major logical extension of separating thinking and doing that ones 'consciousness' i.e. thinking is a separate issue to the resource base. Consequently this point interprets 'elite' quite broadly to included the power elite and business executives for instance, especially academics, politicians and bureaucrats.

The Bushy and the Multinational Corporation

Today the MNC's (MultiNational Corporation's) use nothing less than the globe to separate their thinking and their doing. My 1975 Honours in Economics thesis identified this potential through the power of the then emergent Information and Communication Revolution (ICR) which allows and indeed the thesis anticipated the separation of the information unit and production unit. Wildman (1975). I used information contact pattern theory at the time coming out of Europe to construct a theory of economic development which anticipated the process whereby the large corporations are able to transcend the nation state and to use the economic potential difference between developing countries/areas where they would locate the production unit (doing) and the developed countries with their market where they would locate their information unit (thinking) – from what I can see this directly links with some of your work, which of course you have taken much further.

The post industrial dimension to this is that for the first time the ICR allowed the cash register to be located at the thinking end of the separation spectrum which shifted the balance of economic power from the industrialised doing to the knowledge economy thinking - so to speak.

So the Multinational uses nothing less than the whole Globe for its Artifice!

Like in Public Finance where there is a principal that revenue should be spent where it is raised and in bio-organic food production with is broadly similar requirements the artificer seeks to re-link thinking and doing to bring the cash register back home. This is not a back to basics move but a proactive future oriented re-generation of an age old wisdom for a post post industrial world.

Pragmatic A: The corporate artificer - Artificer as an organisation

Organisation (corporate, NGO) excludes bureaucracies -
Generation 0: Conventional 'for-profit' corporation, low expenditure on R&D; NGO assisting the fallout/picking up the pieces from the status quo
Generation 1: Started by an artificer/pioneer - the artificer in an organisation

Generation 2: Gen 1+ Run along artificer lines - the organisation as artifice
Generation 3: Gen 2+ Undertaking artificer projects - the artificer organisation
Generation 4: An Artificer intermediary organisation helping other organisations undertake artificing

Corporations and NGOs crucial for COTF and addressing systemic megatrends - we need a way of leveraging the individual artificer so we enter the realm of the artificer concept and apply this to organisations. Today corporations are emerging as corpor'n'ations.

Table 17: The Corporate artificer - corporations as artificers

a. Corporate Artificer Categories	b. Illustrative Corporations*	c. Comments/Attributes/Examples	d. Est.**% Artificer	e. Est.** % of corporations
Gen 0	**Conventional 'for-profit' org**	No further explication required	10%	95%
Gen 1	**Artificer Pioneer corp**	Flight Centre Corporation, ABC Child care corporation	20%	04%
Gen 2	**Artificer Governance/ process**		30%	00%
Gen 3	**Artificing Corporation**		90%	01%
	a. Skunk Works	Lockheed's classic skunk works (actually called this)		<0.7%>
	b. Strategy Deployment			<0.2%>
	c. Artificer Org			<0.1%>
Gen 4	**Intermediary Organisation**	In theory at least what a lot of UN & community based NGO's 'claim' to be doing	60%	00%
				∑ 100%

Source: P Wildman 01-2007

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Table 18: Classification of Occupations - Artificer as individual

a. Artificer Categories	b. Illustrative Occupations*	c. Comments/Attributes	d. Est.**% of the job is Artificer	e. Est.** % of labour market
1 Artificer	**(formal)** Master Builder, Lifestyle Therapist (not life coach), Skipper on smaller vessel, GP, Middle level military (field operations), Bush Mechanic, Artificer (informal) **(informal)** creative gardening, sewing & cooking, parenting	**Key Attributes** (inc. yet broader than principles in that one principle can have several attributes/components): 1 Interface (vertical & horizontal) agency crucial, 2 'D'esign, 3 exemplar project, 4 social holon, 5 Global problematique → problemamatechneque, 6 techne & practique (dexterity manual & mental), 7 Mimesis, 8 Agency	Structure, a posteriori V's a priori knowledge (lived life), 9 INPL (melding pedagogy & androgogy), **Left field attributes:** 1 wild science, 2 Middle Ages - artificers & masons, 3 DUF, **Collective Learning Attributes**: 1 heterotechnic polypod co-operation, 2 Guild equivalent, 3 Learning Enrichment Foundation, 4 ACE, **Linguistic attributes**: 1 Lexicon, 2 visual language	90%	01%
2 Artisan	**(formal)** Surgeon, Artist, Dentist, Accountant, OT, jeweller, watchmaker, chef **(informal)** engineering hobbyist e.g. model trains	No specific qualification in Australian for artisan i.e. post trade (unlike France where one can become a doctor of plumbing)	60%	01%
3 Master Tradesman	**(formal)** Standard callings **(informal)** coach, farmer, specialist paint shops (cars), some engineering	No specific qualification in Australia for MT. The pre-requisite for this category, however, is for post trade qualifications in relevant callings. Yet for instance in Queensland/Australia no post trade qualifications exist only Admin & Management. The assumption here is that once one has ones trade one would not want to finesse these skills rather one would prefer, & now there is no alternative, to go into management (thinking & leave doing - the trade or as its called colloquially 'the tools' - behind). Yet again thinking trumps doing.	50%	02%
				04%
4 Master Technician	**(formal)** Motor Mechanic (supervisor), pilot **(informal)** computer nerd	Still basically a 'plug & say' diagnostic	30%	01%
5 Tradesman	**(formal)** Standard callings **(informal)** DIY'er	Strongly even exclusively focused on one trade area & further focused on disaggregated skills behaviourally assessed within that trade arena, operationalised by a join the dots approach to assembly with few if any synthetical skills & no integration/interface skills with other trade areas. That is no basis for post trade qualifications let alone artisan or artificer expertise.	20%	10%
6 Technician	**(formal)** Many trade callings esp. in engineering arena **(informal)** IKEA home assembler	Many trade callings today are falling into this category as construction becomes mere 'join the dot' assembly, & mechanics becomes 'plug & say' i.e. plug the vehicle into a computer which tells one what needs replacing & not why it is faulty - intra component repair now not possible only sub-assemblies & even whole assemblies are sold	10%	20%
7 Apprentice	**(formal)** Standard callings **(informal)** Newbie	As per tradesman	10%	01%
8 Trades Assistant	**(formal)** Standard & broader callings not formally recognised inc. rouseabout, jack/jillaroo, **(informal)** Gofer	No further explication required	05%	10%
				42%
				∑46%

Source: P Wildman 01-2007 * formal - indicative only all occupations have elements of artifice no matter how evanescent these are aggregate positions considering the general tenet of the occupation. ** indicative only

Observation: (1) If an arbitrary figure of 50% or more of a job to be Artificer is required before the occupation is classified as Artificer, then only master tradesman, artisan & artificer qualify as artificers i.e. some 96% of the labour market; & tradies, technicians & apprentices don't. (2) We all have potential to move up this scale to varying extents depending on nature and nurture. I expect that top flight artificers are at most, even in the best of conditions, 1 in a 100 whereas today they are at best 1 in 500,compared to 1in 100 some 50 years ago, however I believe strongly that at least 50% of us in the rest of the population can move from the present average of 15% artificer i.e. below to above the purple line i.e. 50% and above in column .d above.

Pragmatic B: Types of, differences and similarities between Artificer and Bush Mechanic

There are some subtle differences between an artificer and bush mechanic though to see them working or explore their exemplar projects one would probably never guess. First the Western Artificer works within conscious detailed theoretical knowledge generally related unconsciously to a cosmology where as an indigenous Artificer/Bush Mechanic works unconsciously with deep theoretical knowledge within a conscious knowledge of the embracing cosmology. Secondly the Western Artificer has constantly to bring theory and practice together whereas for indigenous bush mechanics they have never been separated.

For the purposes of this e-book Artificer and Bush Mechanic are considered synonymous and are of quite narrow application.

Types of Artificer/Bush Mechanic

Further there are different types of artificers/ing: (1) Western and Indigenous Artificers - as above, (2) what may be called artificer apprentices - generally starting after a trade has been gained and continuing for several years - all up 7 or so years minimum, (3) artificer 'gofers' - folks (like me) who for several years while undertaking an exemplar project go for (gofer) and pay for (payfer) the parts and paints and bits and pieces necessary for the project, (4) organisational artificers - organisational/corporate/community pioneers who seek to establish an organisation that operates in an artificing process, (5) organisations that artifice - these for instance would be organisations that seek to develop prototypes and proof of concept type innovations.

The primary focus of this e-book has been on (1) viz. developing the fourfold criteria to identify a bush mechanic i.e. (1) while recognising the importance of 'passing on the skills' through action learning i.e. (2), endorsing gofer type folks who participate and pay without seeking to be an artificer proper i.e. (3) and recognising that there can be such a creature as a corporate bushy founder for instance i.e. (4) and a corporation that operates as a bushy i.e. (5).

Exclusions

Excluded are (1) folks who commission say a boat or building a house, and organise its appointments and so forth but take no active physiospheric role in its construction i.e. develop no hand knowledge or techne as part of the overall construction process, (2) handymen/women and practical people who have technical, even technecal, skills but have never directed them at an exemplar project - these may well be nascent artificers.

How come be so fussy?

It is important to note that these exclusions and inclusions are the result of applying the definition of artificing developed in this e-book this application will drop out many folk commonly thought of as bush mechanics. This level of discrimination is crucial as within a crowd of 100 people there are likely to be only a few artificers - these are the folks to whom this e-book is dedicated. My estimation is that this number has fallen during this Action Research Project from 3% to less than 1% for instance of the Australian workforce (15-64). These are the folk who remain unrecognised and who in numbers are rapidly slipping into the twilight of history. Yet who hold an expression of what it is to be human that is timeless that stretches from the Palaeolithic time and out in front of us. It may be that in our ignorance the robots take the future ground in front of us - probably this will be the case. It doesn't have to be however - if we but have the discrimination to see. Our children's children demand nothing less.

Philosophic A: Consciousness

This e-book argues, as with its conception of philosophy as wisdom in action, that consciousness may be considered as our ability to comprehend and understand the big picture and the ability to marshal resources such as intelligence, abilities, surrounding resources in relation to responding to, and reflect on, the needs and deeds thereof and in relation to respectively in order to respond creatively and indeed ingeniously thereto. [NB: note the section in Appendix I of this e-book on types of intelligence]. Indigenous folk use pictures and stories/myths to locate them selves cosmographically whereas we tend to use formulas and maths. [see Figure 3: Myth And Math (Theory): A Dialectic Equivalence]. Wilber for instance locates such indigenous artificers simply as 'primitive'. His twelve Stages of Consciousness are a reflection of the western arrow of times progress.[39]

Many consciousness practitioners consider a systolic model realistic viz. a moment of action and reflection, like breathing of the beat of ones heart. This concept is behind many of the 'Zen and the art of …….' In the sense of this e-book we have then 'Zen and the art(ifice) of ingenuity'. Clearly this fits well into the above conception of consciousness. Artifice being part of the moment of action then contemplation on ones artifice and that of Nature comprises the reflective moment.

Conscience

Possibly a subset of consciousness conscience speaks of our individual and joint sense of responsibility towards one another and Gaia. If we take apart the word we have community science – a step before community artifice e.g. con (together) science (in this instance the psycho-cybernetic interaction between the physical and human worlds). Another meaning is an innate sense of right and wrong, though hotly debated this second meaning can be taken as 'an inner desire to do my bit'. A key theme of this e-book then would be learning through community or organisationally based artifice i.e. artifice can become an expression of our conscience. In this sense consciousness becomes con-sciousness collective awareness and understanding of todays issues challenges and Global Problematique.

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[39] Wilber's four quadrants of Human Development are quite well known and are discussed in Chapter 2 of this book. These four quadrants in effect exist for various, for Wilber 12, stages of consciousness. For Wilber these 12 stages are in three tiers. Cohen and Wilber (2007). Tier one (infrared, magenta, red, amber, orange, green) covers 'primitive', infantile (infrared) to post modern, pluralistic (green); then a radical leap takes us to the second tier (teal and turquoise (holistic, systemic, and integral modes of consciousness; and then the third tier reaches to even more integrated, transpersonal and ultimately cosmically conscious (strangely reminiscent of the Ancients and Indigents today - PW - back to the future?) which for Wilber et al represent the leading edge of consciousness research today. Again these tiers are noospheric and have little causative involvement with the physiospheric. Indeed the integral 'so called' activist Steve McIntosh, founder of the Project for Integral World Federation and integral activist speaks with *WIE*'s [What Is Enlightenment] Carter Phipps about the evolutionary nature and real-time social applications of integral philosophy, Taylor sees the challenge a noospheric/conscious evolution one and actually uses the word without any reference to the physiosphere. Bushies and other 'A'ctivists are truly truly alone. [Jan 2007 edition http://www.wie.org/] Its like in Bell's 2003 article where he argues that when the rate of change gets to a certain point where it equals or exceeds the speed of response (response loop/time) everything goes silent (and if I may add - into slow motion) the silent scream announces the arrival of The Singularity. Modis (2003:31) goes further and maintains that by 2025 we will be witnessing the equivalent of all the twentieth-century milestones of major change in a week. He argues that the silent scream started with the completion of the human geonome. Modis (2003: 30 Figure C).

Sustainability

Debate has raged for millennia in relation to this now added to the mix we have the degrading environment as well. The argument is that indigenous folks killed off many of the mega-fauna e.g. in Australia and New Zealand and so forth. A countervailing argument is that indigenous folklore and 'dreamtime' creation stories ensure that there is a deep bond with the land and that no deliberate harm would be done thereto. Either way when one considers the environmental devastation being caused by conventional science and technology to Gaia the latter claims seem most reasonable.

So in this sense that these cultures some still extant, e.g. the Australian Aboriginal, over millennia upon millennia not only survived in balance with the land but thrived viz. thrival compared to our effort over a few hundred years one is compelled to say that the Neolithic systems of interface with the environment was 'sustainable' compared to ours today.

Furthermore today we see many day to day artificer/inventors turning their 'consciousnesses' to one of the big three, especially sustainability. Devices to limit water and petrol use, to help revegetate land and so forth. The suburban artificer has much to offer in this cause however his advice is seldom sought and almost never heeded except where it can be commercialised. Examples of 'artifice' type responses to this challenge include: eco-villages, bio-dynamic farming and permaculture.

Like other words in this 'big three' sustainability is a 'splodge' word with as many meanings as days in the year and then some. The term is used here in the sense not only of survival but also thrival even creative evolvability which would be seen here as 'creactive' evolvability even as form of evolution. Generally it includes considerations of social justice, environmental justice, intergenerational justice, inclusion, local empowerment, appropriate scale, recycling, energy and water use minimisation and reuse, generally under the adage of think globally act locally and respond personally. As can be seen from these (and others) attributes of sustainability Artificing has a significant role to play.

Recycling V's Reuse: The Artificer approach to sustainability is vastly different to that of many in that she advocates reuse and repair prior to recycling as in reprocessing. One of the biggest cons in the sustainability game is for subtle incorporation of whole system planned obsolescence, so that when a car part breaks the whole sub assembly is replaced not just the broken part indeed soon it will be throw away cars/hair dryers etc. With labour the cost of $100AUD/hr in Australia repair though eminently possible technologically is no longer viable economically unless one is in the parallel universe/economy of the Artificer/Bush Mechanic.

Not only does 'repair and reuse' have a place of prominence in the Bush Mechanics kit. This means repair at the point of use not at the point of manufacturer - this positioning on the production value chain is I maintain crucial to an informed and contributing citizenry. Further it helps prevent mindless proprietarisation of products such that only a select and most expensive BMW mechanic can replace (not repair these days) or even understand even part of the technology, and for Germanic systems it is technology not technelogy, involved in for instance engine management.

Full exploration of this issue is beyond the scope of this e-book however it remains a critical element deeply favouring an Artificer type approach and could well be an e-book in itself.

Violence

Just as tools sometimes are used as weapons all too often the reverse fits and weapons are used as tools. Here tools are used for oppression, for terrorism, for killing others,

destroying habitats and so forth, a sort of Darth Vader Artificer – an artificer who went across to the dark side. In the human just as there is this penchant there is in human nature a counterbalancing one towards hope, towards greater diversity creactivity and harmony. The artificer has an even greater role to play in this regard through exemplar prototypes for a second enlightenment that can demonstrate today that a better world is possible tomorrow for our children. If not the artificer who? Where? How?

Philosophic B: The ontology of Action - philosophical requirements of the Artificer concept

Indigenous linking of head heart and hand

Indigenous peoples regard all products of the human head (mind), heart and hands as interrelated and flowing from the same source i.e. the relationships between the people and their land, their kinship with other living creatures that are the land, and with the spirit world. Ingold (2000:150) Since the ultimate source of knowledge and creativity is the land itself, all of the art and science of a specific people are manifestations of the same underlying relationships, and can be considered as manifestations the people as a whole and ultimately of living nature of which they are a part.

In this sense it may be said that the bush mechanic imperative viz. the Artificer Urge potentially as a Will to Artifice, originates out of '**the indigenous circumstance'** we find ourselves in from time to time. Such circumstances have these attributes: thinking and doing are blended; dichotomous thinking is averred; often matriarchal (pre-fall); people, relations, vocations, flora and fauna, and the natural world valued for other than money i.e. their intrinsic worth, their links in the cosmic chain of being and ceremony and myth and math, their links to the artificer urge; the artificer urge strongly recognised, the world has a harmony from the local to the cosmic and return; ingenuity is embraced; reciprocity within nature wherein the indigenous locate i.e. Nature and Humanity is not a Them and Us world view; the linking or triangulating of what we may call the Bush Mechanic, eNuffer and Elder; reuse rather than recycle.

Hellenistic Active Practical Wisdom

As discussed in the Hellenistic/Aristotelian sense in Appendix K.

Resolving the Cartesian ontological dilemma

The Cartesian ontology that holds so much sway today in schools and Universities alike is one that divorces the activity of the mind (as in thinking) from that of the body (in doing) in the world. Ingold (2000:165). This means that knowledge is constructed as transmissible cognitively and distinct from the ways in which it is put to use in practical contexts of perception and action in the lived life of the people.

Ecological psychology beats a path out of behaviourism and away from cognitivism by viewing perception as an act. Thus perception may be see as a mode of action, and as such embeds intentionality, and thus agency and imagination of the 'agent-in-environment.

In an anthropological nature nurture debate clearly nowadays there is strong argument for overlap and not mutually exclusiveness however Ingold (1993), (2000:378) goes further and agues that it is not so much this distinction rather the nature of the development ↔ environmental process with which the human (child) is embedded and interfaces that determines outcomes not genotype not phenotype but envirotype. And he continues *'it is nevertheless true of any process of development and innovation that it must involve an organism in relationships that cross-cut the boundaries of conventional taxonomic groupings'.*

The Phenomology of Artificing

The environment of joint practical activity (the physiosphere) should not, however, be confused with the physical world of 'nature' (the biosphere), as the world can appear in this latter guise only a creature that can disengage itself for imagine itself to be disengaged - 167 In this sense the world becomes a meaningful place for people through being lived in rather than thought about i.e. through 'agent-in-environment'. Thus meaning (and by association the skills associated therewith), far from being inscribe on the bedrock of external physical reality and its associated necessities, is actually immanent in the relational contexts of people's practical engagement with their lived-in environments. 168   Thus we have calls by Ingold and others aligned with the Phenomology school of philosophical inquiry, for a **'paradigm of embodiment'** in the sciences social and physical. **Artificing is, this book argues, one such paradigm.**

Indeed Ingold (2000:171) calls for the translation of the grounded study of such 'ground up' systems of technology which he terms a phenomological approach into programs of research that would give a more accurate idea than we presently have of how people succeed in their tasks. **Artificing** may I suggest be considered in this regard **one such** small **research program.**

The Artificer as an instance in the Anthropology of Technelogy using Hermeneutic design

What started out as a thought exercise in designing an 'ideal' education system and then was grounded in Bush Mechanics - indigenous, local, personal and collective, then evolved to be retrospective to for instance the Guilds from the Industrial Revolution in the early 1800's, the Statute of Artificers in 1563, Chartres Cathedral in the 12000's, the Romans around 0 and then much further back to the Neolithic times 10000BCE. In this sense this e-book may be seen as phenomenological research into the Anthropology of Techneology, possibly even hermeneutical design and techneology - a mutual co-arising of meaning in context of lived life. But wait there's more!!! It is my sincere hope that the e-book will be seen as much as outlining key future potentia as well as a walk it the park of the past. This design philosophy is the anthesis of the conventional 'cut and shut' method where the end is to be known in minute detail before the end. Hermeneutic design then is organic and is more akin to the creatively evolvability of Alexander's (2005) 'pattern language'.

The Artificer as a manifestation of Ecosophical Holonic Mereological Phenomenology - countering the challenge of Mereological Nihilism

Ecosophy is the practice of an inclusive and participative ecology wherein humanity locates within it and thereby does not 'other' nature. Mereology then is the philosophy of the importance of the parts to the whole, whereas Mereological Nihilism (also called compositional nihilism, or what some philosophers just call nihilism) is the position that objects with parts do not exist (not only objects in space, but also objects existing in time do not have any temporal parts, and thus only exist in the present moment), and only **basic building blocks without parts exist** (e.g., electrons, quarks).

Thus the world we see and experience full of objects with parts is a product of human misperception (if we could see clearly, we'd not see compositive objects). Clearly in the concept of the Exemplar Project, interface between the parts i.e. mereology, for instance, is central to the Artificer. Indeed we may see the Exemplar Project as a sort of Reverse Mereological Nihilism wherein the whole does not exist other than as a syntropic assemblage of interface between its parts so the whole becomes a new macro part - Holonic Mereology (as in Mereological Nihilism where the parts do not exist separately but now rather as they synergise to a new macro part).

Phenomenology is a philosophical method of inquiry which, is based on the premise that reality consists of objects and events as they are perceived or understood in human consciousness. Clearly this is also a pre-requisite for the Artificer to be extant. Nevertheless Phenomenology also by corollary maintains that whatever is not available to the human consciousness does not exist and that existence is to be grasped intuitively neither of these necessarily cohere with the Artificer.

Acosmism V's Pantheism - an artificers perspective

Acosmism (tends to be Eastern e.g. Indian in origin), in contrast to pantheism (tends to be Western in use), denies the reality of the universe, seeing it as ultimately illusory, (the prefix 'a-' in Greek meaning negation; like 'un-' in English), and only the infinite unmanifest Absolute as real. Pantheism on the other hand literally means 'God is All' and 'All is God'. It is the opposite of cosmism - belief in the reality of the universe. It is the view that everything is of an all-encompassing immanent God; or that the universe, or nature, and God are equivalent. More detailed definitions tend to emphasize the idea that natural law, existence, and the universe (the sum total of all that is, was, and shall be) is represented or personified in the theological principle of 'God'.

This philosophy begins with the recognition that there is only one Reality, which is infinite, non-dual, blissful, etc. Yet the phenomenal reality of which we are normally aware is none of these things; it is in fact just the opposite: finite, dualistic, full of suffering and pain, and so on. And since the Absolute is the only reality, which means that everything that is not-Absolute cannot be real. Thus, according to this viewpoint, the phenomenal dualistic world is ultimately an illusion (maya to use the technical Indian term), irrespective of the apparent reality it possesses at the mundane or empirical level.

From Entropicism to Syntropicism viz. entropic logic to syntropic artifice

Entropy, codified in the second law of thermodynamics, maintains that 'the universe is running down from order (neg-entropy, xtropy, syntropy) to disorder (entropy). Evolution requires diversity and thus produces increasing diversity that is syntropy. Evolution thus situates humanity holonically within the environment. Ultimately in this sense objectivity or the Cartesian duality of thinking and doing of objectivity and subjectivity of mind and matter of global and local etc. can not be valorised. Rather they are re-joined. It may well be that, from a speculative perspective; such re-joining speaks of the pre fall era i.e. for instance the Neolithic. It may also be that an ontology based on the supremacy of the objective produces what may be called **entropic technology** as contrasted with **syntropic technoelogy** instantiated as the entropic logic of the cruise missile to the **syntropic artifice** of the exemplar project, that comes from the cosmological view of humanity situated within the environment, as the saying goes: *a rose plucked from its bush is still a rose but a man plucked from the universe is a mere absurdity*.

Neolithic redux through 'homeland taskscape' - situating work and time in Neolithic communities

As Dingle (1988) and Lawlor (1991) argue work is not a discrete aspect of the lives in Neolithic communities it is embedded in ceremonial and social activities thereof. These activities were 'spherical' i.e. vertically (intergenerational) and horizontally (similar ages) integrated both in the individual and group sense. Likewise the sense of time was profoundly different to our current Western linear mechanised version a remembrance of which each of us wears on our wrist. Time in these communities' moves to cycles that interact between natural and ceremonial phenomena often related to celestial events of lunar passages, daily risings of the sun, solstices and equinoxes as well as harvest time etc. Taylor (2004), (2005). For instance I'll be there in two rice cooking's - means in Madagascar circa. 1920, one hour likewise in Medieval England time was denominate in

terms of cooking an egg, saying a prayer or having a pee. In sort time is intrinsic to task. Ingold (2000:325).

Indeed this leads Ingold (2000:325) go advance the word 'taskscape' rather than work, where taskscape a subset of lifescape (one could equally posit the term taskstyle as a subset of lifestyle) which for Ingold may be understood as 'the totality of tasks making up the pattern of activity of a community'. Here the taskscape, a subset of landscape, becomes a home in our homeland for our thoughts, and landscape a 'homeland of our thoughts'. Ingold (2000:207). In this sense taskscape homeland becomes home to our 'muscular consciousness', visceral awareness and auditory attunement to task. Further taskscape is social it is reified by its relatio i.e. its existence in a web of social relations with people attending to one another in the performance of their task, we see this a little today in the corner store (the few left) and even echoes in the 'café culture'.

The Artificer as a Post-Humanist

The technologies that people adopt influence their philosophic views. A classic example is invention of clockwork machines in the early Middle Ages, soon followed by the invention of a clockwork universe - which has served science well but Earth poorly. Here Ferguson's (1966) thesis is that concept follows conduct: in adopting any appealing technology, men act and then they think. Ideas and sentiments arise out of repetitive physical acts.   Post modernism then in focusing exclusively as the noospheric linguistic critic of modernity inadvertently has had the effect of pushing nature even further into the background, of separating it even further from the human project wherein nature too becomes 'socially constructed'. Nature becomes the final simulacra. So no longer can we distinguish between Disneyland and the Great Barrier Reef (Australia). Perhaps this is the last appallingly appealingly gasp wish for a thoroughly post modern, industrialized, technologised and urbanised species. Rowe (1997).

We need a new bonding - a bonding of mind to body, of body to body in community and of body to planet, a post post modern traditionalism, a post rationale naiveté, a transcendent wildness, a deep ecology of the savage mind (and body), a real human being (where thinking and doing are consubstantiated).

Either this or the pregnant robot!!

A response to this as counterpoint then is the Artificer as a Post-Humanist, akin to Deep Ecological Philosophy or Deep Ecology. Such an approach is profoundly diverse and ecological, favouring a broadened focus that includes humanity's enveloping matrix. It acknowledges, with a celebratory sense of awe and wonder, the source of creativity in undomesticated, contingent Earth and its technology. Although it affirms that the protection of Earth-life requires a global scaling down of the human enterprise, it is not anti-human or anti enterprise. It recognises the importance, within the human community indeed of the human enterprise and artifice itself, embedded in an 'emancipatory agenda' that furthers and supports democracy, equity, justice, and freedom of the individual from oppression. It believes, however, that these values can not and should not exist in an anthropocentric vacuum that is as a continuation of the modernity project. Rather they should be seen as part of a community economy which in turn is part of a bioregion.

Artifice as Homework

Here the understanding of environment includes landscape in which lifescape and thence homeland/homescape and thus taskscape and timescape locate and is temporal are completed then this aspect of the homeland morphs to another format a little like taskforces come and go as their set task is achieved. And time is denominated in terms of tasks and is embedded in the rhythmicity of the social relations and tasks of the lived life or 'lifescape'

of the particular community. Time here emerges from the lived life not from the external metronome.   Homescape in this sense includes 'home' which Ingold (2000:330) maintains is represents a 'perspective on life' that draws directly from pre-industrial times, which he calls 'dwelling' and I call 'engagement' or 'enactment' or 'relational'. Home then plays at once a key role in the lived life as well as being a vital perspective on same. In this sense Artifice becomes Homework

'The Dwellingness' or 'Dwellinghood' in late capitalism

This 'dwelling' perspective as in in-dwelling or dwellingness or dewllinghood may now be contrasted with the 'commodification' perspective of late capitalism wherein commodity-based institutional and ideological framework that seeks at every turn to commodify the environment and all who sail in her so to speak, and thereby concomitantly deny the reality of situated social experience viz. the 'lived life'.

Work and Kairos - carpe diem in Taskscape

Traditionally there is a concept of confluence, called kairos in Ancient Greek, when it is right to work as human action synergistically meets natural process which is developing according to Natures own rhythm - for instance fishing, where human actions need to be matched with weather, tides and seasons. Kairos is an important part of 'techne', a sort of carpe diem of the taskscape.

Artifice as self imposed psychological trauma - Dancing and Dealing with Closure

Identifying and Handling the psychological costs of the Exemplar - Dancing and Dealing with the 'Management of Closure'

In our culture as someone who has undertaken a number of artificer related 'exemplar' type projects I have found a relatively high level of aversion even hostility to same usually resulting in a subtle and not so subtle process that I call 'management by closure' a term coined by a friend's (Maggie Travis) mother. These inc.:

1. **Costs - establishment** - generally exceed the budget by 100%
2. **Costs - running** - maintenance and op costs are generally substantial + generally one has to do much oneself (un-included) since it is a one off construction
3. **Epistemic** - the tectonic separation of thinking and doing in Western culture seldom allows the recognition and valorisation of initiatives/projects that reverse this such as Hobbies
4. **Exemplar Rage** - Anyone who builds an exemplar experiences many instances of upsetness of others at this achievement. [also see 'Psychological' and 'Rub outs' below]. Folks/observers/fellow boaties/passers by will always be sure to find one thing to pick on or one thing that they consider the project may need and this then becomes the 'axis destructus' so to speak for the artificer, the project and their need to consider it as credible
5. **Management now crucial in linking thinking and doing** - itself an abstract topic management generally reifies the separation of thinking and doing appropriating the former for itself and delegating the latter to 'operatives'. Yet management has become operationalised esp. middle management so that it simply enforces senior managements orders/instructions
6. **'Outsiderism' psychological angst at being a form of 'other'** - the general 'lack of fit' of the EP and ESD (project and process) in society generates many instances of cognitive dissonance and when one is spending heaps of ones life, skills and dollars on the project this can be most most disconcerting
7. **Rub-Out Rage** - Primarily related to service rub outs there are however many many types experiences in this regard. In Australia it was my regular experience to be 'rubbed out' i.e. to have ones request brusquely brushed aside by sales/trades

staff who had no interest in actually understanding what one was after and helping 'me the customer' actually find the item/service/alternative. The rage is felt by the Artificer the sales people are oblivious.

8. **Service what service? - no one around here knows that word** - as described in this eBook fulsome empathic service is seldom forthcoming roughly 1 instance in 30 is my experience. Even worse most large companies simply make it impossible for complaints/comments on service to be lodged they have all but given up on customer service except in their spin type brochures
9. **Supply - well maybe next week….. -** supply of parts and supplies for such a project are generally infrequent and simply wrong and generally require substantial delays and waiting - all of which tests a project and ones faith therein
10. **Accountants -** often disparagingly refer to these projects as 'big boys toys' or 'hobbies' and in most instances they are right in that affluent people buy expensive ready made products and tax deduction etc. rules are made for them to exclude such 'toys' as worthy expenditure
11. **Taxation** - generally expenditure on such projects are seen disparagingly 'h'obbies are not seen as innovation etc. but as a personal expenditure not eligible for taxation deductions
12. **Under The Radar** - many bushys go UTR so to speak so as to avoid these dilemmas from the formal economy only pay cash, don't register a business etc.
13. **Mates Rates** - there embryonic dual economy or bushy economy where close UTR colleagues pay in Cash, Kind or Care etc.
14. And so on ……..

These are the sorts of aversions and negativities that one has to struggle through on a daily basis in order to make ones exemplar while seeing them as a mirror on (1) society and (2) oneself so that one seeks not to rub out other exemplars, their makers and support systems esp. when they are way beyond ones own abilities. As a small example whenever I go out for a mornings looking for parts say I go armed with catalogues with respective pages marked a road plan for where to go first and a quite private preparation to be rubbed out three times (once every couple of hours).

Over two major house renovations one boat rebuild and one de novo build for me unfortunately this has however has left its psychological scars. After having been rubbed out and experienced an estimated several hundred rub-outs i.e. up to three times per day , and several 'robust exchanges' involving most of the above over a four year build period I have all but given up on further such projects it is just swimming against the consumer current too much. A crucial assistance in this serious psychological 'drama' was my more experienced mentor artificer who decoded the experiences, debriefed me in the car afterward and gave me the term 'rub out' prior to this I had not come across this term and so did not have a ready made mental handle for such experiences.

In short prosumerism doesn't fit consumerism does!

Philosophic C: Summarising the philosophical pre-requisites for Artificing - outlining individual techne and syntropic Artifice to address the debasement of craft

Syntropic Artifice
Clearly an artificer draws from an ontology that reifies 'the lived life' and as such in principle departs strongly from Acosmism. And in practice tends to depart from pantheism in that there is no necessary need for this particular type of spiritual belief. Nevertheless certain cosmological, ontological and epistemological views remain crucial in constituting

and situating the artificer for instance: (1) the **kairos of the artifice** whereby human action synergistically meets natural process which is developing according to Natures own rhythm (2) the Hellenist/Aristotelian reification of **Active Practical Wisdom** as an intrinsic component of being human (3) **Holonic Mereology** (in the existence of parts which are nested in wholes) in terms of physical parts and individuals in community, (4) **Cosmism** (that the manifest dualist world is 'real'), (5) **Phenomenology** (that events provide a useful place for situating inquiry) and (6) the resolution of the **Cartesian ontological dilemma** (that thinking and doing, mind and matter are mutually exclusive) leading to (7) **Syntropism** (an epistemology of science that maintains a positive sum game towards a better world of greater diversity and inclusion is possible), through (8) **Artificers support environment** inc. in nature community, creactivity and economy and environment (9) plus the input of the **Artificers techne** using (10) **Deep futures** (to determine issues and priorities from the global problematique) and (11) **Hermeneutic design** (whereby changes to the outcome occur as a reinterpretation of the original intent during the construction through generating retroduction or even integra-duction i.e. **integra**l retro**duction**) to generate the (12) **Syntropic Artifice** (syntropic exemplar projects incorporating the above components) generating (13) **Exemplar projects** that demonstrate today that a better world tomorrow is possible leading to (14) **Androgogy** for artificer mentoring, yearning and learning as part of deep learning emerging from our lived life.

Individual Techne - kairos, muscular consciousness, visceral awareness, cognitive, acuity, visual aesthetics, auditory coherence, tactile orientation, skilled expression (artisan), experiential anchoring in lived life, environmental synergy, manual dexterity, agency, intentionality, understanding, imagination, holonic interface, heterotechnic co-operation.

The essence of skill is dexterity and the essence of dexterity is not only in bodily behaviours themselves, but also in the attunement and responsiveness of these behaviours to surrounding conditions that are never the same from one moment to the next. Ingold (2000:353)

The debasement of craft
Plato's separation of mind and body, thinking and doing, anticipated the debasement of craft that has come to be one of the hallmarks of modernity. 352 This reduction of technecal to technical to mechanical is an inevitable consequence of the isolation of the body as a natural or physical object, both from its own agency that puts it to work and from its environment in which it operates and from the mind of which it is an integral part and this is separation from its own agency, imagination and intention. Thus Plato's separation presaged the trivialisation then of 'muscular consciousness', visceral awareness and auditory attunement to task as part of craft and inturn the debasement of craft itself. This debasement can still be seen working today etymologically in for instance the reversals in word meanings. For instance: to the mid 1600's **artificial** meant full of techne, deep skill and art. More recently the **artefact** no longer is regarded as the original expression of tehne but rather as a cheap mechanical copy. Even more telling has been the removal from **craft** of any residual of **art**, Ingold (2000:349-350) and thus the separation of **art** and **artisan** with the debasement, behaviourisation and mechanisation of the latter and the elevation of the former to intellectual luminary.

Social Policy A: Artificing as a form of 'Southern' Indigent Knowledge

Development activities that work with and through indigenous knowledge and organizational structures have several important advantages over projects that operate outside them. Indigenous knowledge provides the basis for grassroots locality up decision-making, much of which takes place participatively at the community level through indigenous organisation and associations where problems are identified and solutions to

them are determined and implementation crafted. Solution-seeking behaviour is based on indigenous crea(c)tivity leading to experimentation, prototypes and innovations as well as the appraisal of knowledge and technologies introduced laterally from other societies. Such an inclusive Gaia-ethic is a prerequisite for inclusive and participatory eco-justice. I have argued that that this should not be at the expense of recognising that a worldview, in consideration of the principles we acquire to make sense of the world around us, scientifically based or otherwise, which always remains limited, incomplete, contingent and imperfect in terms of its own and others' epistemologies, ontologies, and methodologies and cosmic grasp. Reid et al (2002:17-19), Studley (1998).

These indigenous epistemologies have many characteristics of local knowledge viz. it is local, ground up, experiential, embedded in the lived life, aimed at mutual-aid, consubstantial with thinking and doing, cosmographically linked and so forth. These epistemologies face a similar dilemma to the Artificer and Rare Trades in the West e.g. Australia for example - the techne is embodied in a technecian and dies with that person - simply put the skills as traditional knowledges are literally dying out and the networks that supported them in the past are pulling apart and atomising.

Indeed today many young people in the developing world receive their education in schools with Western-style curricula, rather than at the feet of their elders as in the past. Because most such curricula tend to ignore local knowledge, they tacitly imply that it is not worth learning. Where this perception prevails, valuable stocks of such knowledge will continue to disappear as the old people who possess it die; while their descendants, along with many [outsiders], ignore it. Reid et al (2002:15-16)

Since traditional ecological knowledge relies on a community's insider knowledge, through their histories, contexts, values, and worldviews, a final consideration for environmental educators is thus offered, namely, that of what Reid et. Al. (2002) calls the 'imperialist dynamic' the constant impulse to objectify, simply, capitalise (inc. globalise, commercialise, marketise and monetise) which decontextualise people in the service of political and economic power. Artificing then can be seen as a within status quo form of 'local knowledge' sharing many characteristics with TEK (Traditional Ecological Knowledge). On this basis we should be able to look to indigenous cultures and see some unique and creactive forms of linking technology (western) and techneology (indigenous). In Australia we can do this in the form of the Indigenous Artificer. See for instance: http://www.fbo.com.au/movie.asp?ID=10187 - Indigenous Artificers web site; http://www.abc.net.au/message/archive/bushmechanic/ ; Indigenous Bush Mechanic TV series by episode - http://www.bushmechanics.com/pages/bush_mecanics/body_bm.htm - more general information on indigenous bush mechanics.

The lives & Times of our humble Artificer - 8 macro-historical stages

This eBook argues there have been at least five stages in the life and lives of the Artificer or Bush Mechanic. The further three stages presented below are speculative and with suitable policy changes may well, and hopefully will, not occur. NB: these stages overlap somewhat and are not meant to be mutually exclusive:
MH Stage 1: Pre-History - Neolithic when perforce thinking and doing were one and humanity achieved incredible feats of building planning social organisation largely without war and all without writing
MH Stage 2: Pre-Modern - Middle Ages when the artificer emerged as Master Craftsman covering horizontal related trades and vertical considerations of 'D'esign
MH Stage 3: Modern - from the Industrial Revolution to the industrial age for the two centuries to 1950 and scaling down to around 1990. Here the Artificer and his world view was finally sacrificed indeed burnt in the furnaces of the manufacturing sweat shops of the revolution, to a point where the Artificer was replaced by 'Artificial' that is by machine, in

this era the artificer population drops by some 95% and survives only in isolated pockets and usually individually and unlinked/netweaved with other artificers. During the industrial Also in this ear Artificing becomes illegal and education systems/pedagogy eschews any link to 'gardening', 'home economics' even 'cooking', 'metal shop' and 'woodwork' and social sciences in Universities becomes almost totally textual i.e. noospheric. In the late 80's we see the emergence of globalisation - a quintessential expression of modernity's destruction of even the local of the habitat of the artificer

MH Stage 4: **Post Modern** - 1980 to around 2005, whereby Modernity reaches its apotheosis and the Artificer her nadir. The grounded work of the artificer now has nothing to do with academic and philosophic discourse which is trenchantly noospheric

MH Stage 5: **Post-Post-Modern** - 2005 to around 2020 on here the artificer re-emerges as explicated below as 'high tech' ~ 'high touch' effectively transforming the Pre-Modern understanding of the role of the hand in artificing

MH Stage 6: **The Age of the Artilect** - 2015 on here we have the emergence of the Artilect - the sentient Artificial Artificer Intelligence. In a sense the human period of artificing has finished and we have failed to understand or respect its importance. It is my contention that Artificing will be one of the first tasks taken over by AI when it emerges around 2015 and will be completed by around 2020

MH Stage 7: **The Drunks fight it out -** 2020 to 2040. Here as AI rapidly rises and ultimately absorbs globalism there are sporadic fights between pro and con groups all the time missing the rise of the robot so to speak - we miss the emergence of the very thing we are fighting about

MH Stage 8: **The Singularity ~ Revenge of the Noosphere -** 2040+- this is the AI tipping point on the globe in that if we survive to this point then it is likely that here AI exceeds HI for the first time so now slowly the noosphere, which was falsely identified as separate to the physiosphere, becomes toxic and starts to strangle us

Tentative re-entry from Stage left for today's Post-Post-Modern Artificer

The post-post-modern artificer, trying to recover from the scorched earth of modernity, extends and even breaks with, his medieval counterpart on several points. These are illustrated below and explicated brilliantly by Alexander (2005: 478-492 and 565). It is in this post-modernity sense in which the artificer is located in this eBook. Post-post in the sense as discussed elsewhere in this eBook that post-modernity remains essentially a noospheric critique of modernity where as post-post-modernity allows the vitality and revalorisation of the physiospheric in short of techne, yet it is techne made anew in the light of modern materials, tools and methods still and strongly though it is techne though now lensed through modern materials.

The PPM term is used while acknowledging that in some ways the PPM movement still is noospheric however the PPM concept adduces the movement to embrace broader understandings of noospheric ultimately I suggest to include the physiosphere, without wishing to appear pedantic a better though more absurd in appurtenance would be PPPM.

The post-post-modern artificer then works through:
1. Through the use of simulations (computer and scale), site visits, mock-ups to full size, prefabrication and intensive client and site involvement
2. Using living design centres in a custom build contest while working with the very latest materials and techniques inc. mass production where relevant in ways that meet the needs of the customer, site, project and environment e.g. global warming
3. Allow workface and workplace adaptation especially design, details, and colour yet matched with : 1) extremely rapid production, (2) ongoing synthesisation and integration of needs of site and customer and (3) unfolding of the aletheia or potential of site and project

4. Within the rubric of direct human touch involvement in establishing the 'making' cp. 'manufacturing' of items for the project including rapid production to meet to days labour | materials ratio (from 10 | 90 in the Medieval era to 90 | 10 nowadays) which is still anchored in custom build and intense fitment to/in/with site in the context of human touch craft. Reincorporation of traditional Artificer methods simply can't work cost-efficiently today where a building can take a century to complete (a pyramid for instance) or a cathedral floor several years cp. several months.

5. The traditional artificer system which, can enviviates the post-post modern through the concepts of custom fitment, ornamentation, attention to detail, hand knowledge etc. Yet the Artificers economy also called parallel or dual economy can provide prototype development but no longer can supply today's mainstream where labour | materials ratios are 90 | 10, these can be moved closer to 50 | 50 but they can never return to a full scale medieval artificer economy of yesteryear of 10 | 90 (say) without reinvoking third world slavery. Tragically this latter scenario is happening in some areas of the world today for instance in the Emirates the hundreds of thousands of labourers from India are paid $50US per month and work 61/2day weeks and 10 hour days in 38degree heat.

6. In this sense techne moves from literal hand tool use based on 'human touch' for instance to include this 'human touch' intense multi-layered fitment to/in/with site by blending techne and technology. For instance working off site on a 'true to life' scale mock up of a floor which is to be tiled and determining colour, design and pattern of the tiles. Then prefabricating tiles by water jet or laser cutter then setting them in swarths then lay them in the mock up to ensure fitment and site enviviation prior to transport to site and rapid fitment while still allowing for minute adaptation and modification to actual site.

So in short the **Post-Post-Modern Artificer** then represents the attempts to recover from the scorched earth policies of Modernity and includes Macro Historical stages 1 to 5 and thereby extends the **Traditional Artificer** concept to the use of ultra modern manufacturing techniques, tools and methods in the traditional custom-build 'human touch' 'high tech ~ high touch' way that blends techne and technology. **It is this enhanced sense of MH Stages 1 to 5, in which Artificer is used in this eBook**.

The Artificer as part of Agenda 21

Based on the above the Artificer Principle then as a form of 'southern' TEK falls within the purview of Agenda 21
[http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm] especially in relation to the following Articles:
7: Promoting sustainable human settlement development ;
8: Integrating environment and development in decision-making ;
10: Integrated approach to the planning and management of land resources ;
14: Promoting sustainable agriculture and rural development ;
15: Conservation of biological diversity;
26. especially Recognizing and strengthening the role of indigenous people and their communities; 31: Scientific and technological community ;
32: Strengthening the role of farmers
36: Promoting education, public awareness and training etc.

(Agenda 21, Article 36.2c/36.13) [has the following objectives: (a) To establish or strengthen vocational training programmes that meet the needs of environment and development with ensured access to training opportunities, regardless of social status, age, gender, race or religion; (b) To promote a flexible and adaptable workforce of various ages equipped to meet growing environment and development problems and changes arising

from the transition to a sustainable society; (c) To strengthen national capacities, particularly in scientific education and training, to enable Governments, employers and workers to meet their environmental and development objectives and to facilitate the transfer and assimilation of new environmentally sound, socially acceptable and appropriate technology and know-how; (d) To ensure that environmental and human ecological considerations are integrated at all managerial levels and in all functional management areas, such as marketing, production and finance]

They also help affirm the rights of indigenous peoples to use their experience and understanding of sustainable development and to play a part in education and training (Article 36.5n). [n) Governments should affirm the rights of indigenous peoples, by legislation if necessary, to use their experience and understanding of sustainable development to play a part in education and training].

Increase co-operation with indigenous people in the management, planning, and development of their local environment, and those of the promotion and the dissemination of traditional and socially learned knowledge through means of local customs [Article 36.10.(i) Countries and the United Nations system should increase their interaction with and include, as appropriate, indigenous people in the management, planning and development of their local environment, and should promote dissemination of traditional and socially learned knowledge through means based on local customs, especially in rural areas, integrating these efforts with the electronic media, whenever appropriate]

In Agenda 21 emphasis on scientific and technological knowledge is not considered to be in conflict with TEK-based resource management strategies. This is a key theme within Chapter 36 of Agenda 21 on education, public awareness, and training, where the documentation promotes incorporating TEK into formal, non-formal, and informal modes of teaching and learning, within schools, the family and community, and so on. Thus, in order to: (a) promote better understanding and use of traditional knowledge systems; (b) foster partnerships between the natural and social sciences and indigenous knowledge; and (c) sustain the societies that are the guardians of these systems of knowledge. Reid et al (2002:14).

This approach requires us to accept the Artificer as (1) and expression of TEK and (2) part of the south in the north i.e. part of an indigenous/parallel/dual economy within the national macro economy.

Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment. Agenda 21, the Rio Declaration on Environment and Development, and the Statement of principles for the Sustainable Management of Forests were adopted by more than 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janerio, Brazil, 3 to 14 June 1992. And the full implementation of Agenda 21, the Programme for Further Implementation of Agenda 21 and the Commitments to the Rio principles, were strongly reaffirmed at the World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa from 26 August to 4 September 2002.

[**Readers note:** much of this section draws strongly and directly from the UN web site on Agenda 21, Studley (1998) and Reid et al (2004)]

In summary: The Bush Mechanic~Artificer - an anachronism or resurgent drive in humans?

Into days world three big-picture topics trump all – *consciousness and sustainability* and *violence*. If one is not talking about these, the 'big three' one will be reading about them seeing TV programs about them or about celebrities and their lavish lifestyles (is there a link?).

This e-book is primarily about a wise way of learning through doing and developing an education system based on artificing. So as the e-books modus operandi is not one of the above 'big three' it will like other 'non topics' be easily and often swept off the table onto the floor then put out with the junk for collection and processing at the recycling station. Pundits will claim, and have, it is too instrumental, too individual, too materialistic, too instrumental, too reactionary, too small picture, too west, too white, too late and so on. All the time these claims are being levelled little new is appearing in the status quo. Little, that is, other than more hate and violence – now State sponsored. Not more love, more ethical behaviour, more inclusiveness, more creactivity, more good news and so forth. Many of these claims and critiques are valid, although even the most conservative acknowledges the value of the Artificers skills after the collapse.

This situation is not just one of finding the right words, even if one could there are precious few receptors able to hear them at any rate. This is a science oriented digital (western) world of progress the rest is silence, at best provincial at worst instrumental craving for a rustified yesterday now 'gone for good'.

Many of us today however believe that violence and lack of sustainability wrapped into declining levels of consciousness will lead to humanities demise either to the mushroom cloud of atomic warfare, the grey goo of nanobot hyper-self-replication, the burning heat of global warming, or the grinding violence of internecine warfare. All these trajectories can be seen even in our day to day life – yet little practical is achieved to combat these threats. Much is written lectured on and debated about these topics yet precious little action. Yet as we have learnt in this e-book action take the lions share, even 90% of the energy to address an issue.

What I note is that when we look at **ALL** the discussions on spirituality and types of consciousness and evolution one finds they are all essentially noospheric and theospheric none are physiospheric in the sense of the artificer. In fact most things to do with consciousness, intelligence and spirituality are silent - the silent scream - when it comes to the relevance of the artificer. We can find trillions and trillions to fight kill and maim each other yet precious little to address the above issues. So that behind all this in my view is to look anew at learning to start somewhere different or we will just end up where we are. So incremental adjustment wont work. Artificer Learning is an attempt to start learning somewhere different, maybe even somewhere indigent, somewhere alien, somewhere 'other' to today's pedagogy yet when we get there strangely even eerily deja vu!!

Readers Note: This e-book doesn't claim to be about primarily indigent knowledge systems, consciousness, sustainability or violence these are beyond the scope of the e-book and indeed the author, however it is about a way of understanding and learning about the world, even a practical peoples consciousness that pundits argue in the past has helped us before we got to the need for sustainability or violence. Evidence is adduced that such an approach is vital nowadays and tomorrowadays and that it has worked efficaciously in the past.

Conclusions

The Research question revisited

This Research Project carried out directly in the 2000-2006 period and in generic terms since 1994, has sought to identify from my experiences and those of others in the androgogy business as well as literature and grounded research, to identify the key parameters of an 'ideal' learning process. This has led us to identify and explore the concept of Artificer/Bush Mechanic Learner. This has been done through the use of several methodologies including Causal Layered Analysis, Heuristic Inquiry and theoretical sampling (a dimension related to Grounded Theory).

The Principal Methodologies however within which these locate are Grounded Theory (inc. theoretical sampling) and in turn Reflexive Praxis all under the general Qualitative Research protocol of Action Research which is seen as a form of futuring.

Enactment not Enthoughtment as Ontology & Epistemology

It has been argued in this e-book that enactment in line with the artificer criteria may be considered an ontology - a method of being - in an integration of means and ends at the point of the concretisation in action, for instance in the exemplar project. Ingold calls this 'dwelling' which introduces a broader sense of place of locality to the enacted. Various terms also relate for instance 'groundedness', which introduces a sense of ecology of place including humans, 'participative consciousness', which introduces an esoteric dimension to enactment.

Anthropocentred without being anthropocentric i.e. since humans are a big part of the problem we should at least be a part of the answer i.e. a focus within the larger circle wherein which other 'answers' as foci are encountered. This is an extension of the artificers 'apparent' overemphasis on action. One counter to such critiques is that there has to be some restoration of balance with cognition some centring on our abilities, some restorative justice starting at the local level in and from the lived life of us the people. This riposte will satisfy few esp. post-modern theorists, analytical philosophers, moral universalists, deep ecologists, techno-utopians and even some wise users.

In all instances what in analytical philosophy is considered 'the mere instrumental' actually blends, not braids, thinking and doing, mind and matter, enlightenment and restoration, through and at the point of enactment i.e. where the act is coming from, where it is going to and what it is itself. It is, then this enactment that becomes our 'locus of authenticity', while recognising that the broader 'locus of meaning' is Gaia, and through our 'actions' we speak to others, after all actions speak louder than words, rather than in 'intellectual jousting' so typical of academia and especially post-modern philosophers.

Here we move from the concept of 'artist in residence' to 'artificer in residence'. Above all this is perhaps the most crucial and controversial of the e-book and for me has been the greatest challenge to articulate. For me this is one of the key outcomes of the Grounded Research for this eBook i.e. the link between the four grounded principles and an Artificer Ontology and an Oikonomic Ontology and a Neolithic Ontology and a Post Post Modern Ontology in short Ontological Anthropology and the rediscovery of the Artificer in our Days of Future Passed. [See Ontological Anthropology section in Appendix K].

Next step - a research agenda to answer the question 'If Artificer Learning is taken seriously what then are the 'next steps' in its promotion?'

==Economic Impact==

1. Recognition of the importance of 'creative capital' and the artificer equivalent 'creactive capital' to **regional economic development** and thus;
2. Consideration be given to developing a **creactivity index** as an extension of Florida's (2003:224) creativity index (a mix of four equally weighted factors (1) the creative class share of the workforce (2) innovation as patents per capita (3) hight tech index (4) socio-economic diversity. [for the bushy creactive class would become creactive class inc. artificers and industrial designers, patents becomes exemplar projects, and socio-economic diversity becomes socio-economic resiliency inc. the existence of parallel or dual local mutual aid economies)
3. Prototype development of a 'pocket rocket' **Artificer Economy** viz. specific community of say 2000-3000 people over a five year test period with a focus on minimalist ~ surviving depressions and optimist ~ community economy development protocols - contextualising the bushy

==Quantifying the Bushy==

4. **Statistically charting the significance of the bushy** as part of the Australian labour market for instance defining the Artificer as a separate category in labour market stats to include occupations such as: strongly DIY related, those involved in I | D | I (idea | design | implementation), engineering, architecture, industrial design, artificers, CIT - Communications and info technology, higher end trades that include design
5. Sociological profiling of creactivity index and **inclusion of this 'artificer index'** in publications such as the **Australian social atlas**
6. **Reconstruction of Quality Assurance** procedures to be undertaken as QA simply assures/quantifies the production process not the quality, fitness for use or service levels of the finished product

==Grounding and amplifying the Bushy==

7. Establishment of a **web-based clearing house** for 'exemplar project's'
8. Extension of this clearing house to a Bushy's Hall of Fame or Institute of Artificer projects or **Bush Mechanics Institute** which can enhance and promote the position of the Artificer as well as creactively promote validated exemplar projects.
9. Development of a format for design of an **artificing corporation**
10. Design of, and integration into, **NGO** constitutions, policy and operations
11. Exploration of the capability of an **intermediary organisation** structure to facilitate the extension of endangered bush mechanic species and its **re-introduction in civil society**

==Extension - Restructuring of Vocational Education to undertake a prototype of Artificer Learning:==

12. Alternative approach to **Vocational Education** based on the separation of techne and technology esp. in the re-introduction of wood and metal shop and home economics in primary and secondary schools
13. This would necessitate the introduction of a **second stream of Apprenticeship** - one for technicians and one for **Technecians** so to speak, with (1) trade, (2) artisan and (3) artificer components. This could well be a key role for a reinvigorated ACE sector - **Adult and Community Education**
14. This **second stream** would need to be based locally, with diverse and flexible, facilitative non-prescriptive curriculum structures not linked to the Structured CBT based Apprenticeship system but having its own stream of formalisations

15. The second stream would not use conventional TAFE's nor conventional TAFE CBT national curriculum processes or products. Rather the stream would be **located directly in community and corporate and NGO facilities** and

16. **Administered by a separate Commission** discrete from Government on a (say) 50% cost recovery basis. It is estimated that in the first few years of operation there would only be some 5% of those in the Technical and Technecians training arena would be Technecians in development

17. At present employers are compensated financially for time off for Apprentices to attend college this **compensation would need to be extended to mentors.**

18. Development processes (**courses**) would include **individual and collective** (NGO, corporate) projects generally on a 50 | 50 basis

19. Collective projects to have the potential, for instance, of **generating say a community based intermediary organisation** that would seed private and NGO organisations that could then for instance employ technecians

20. The **Commission would be administrative only** policy development and course development would be undertaken locally

21. These two streams would need where ever practicable to rest on **secondary school subjects** in Home Economics, Metal Shop and Wood Working - all of which have been discontinued in Australian schools

22. In turn as one works down the conventional schooling grades one would need to support such secondary subjects in primary school and pre-school

23. **Pre-school or child care** support for technecial tool use would require **Intelligent Narrative Play**, building blocks and cooking corners etc.

24. Extend Australia Voc Ed to **post trade** levels. Presently there are no post trade qualifications beyond Admin and Management, which assumes that as tradespersons progress they leave techne behind and 'have' to move to management

25. Alternative approach to **Social Sciences as 'taught' in the Universities** based on the re-braiding of thinking, doing and process

26. Extension of **Action Learning**

27. **Application of Adult Learning** and an inherent part of Life Long Learning

28. Action option for stimulating **corporate innovation -** the corporate bushy

29. Option for demonstrating an efficacious **Social Innovation Process**

30. Incorporate the role of Artificer/**Bush Mechanic as Global Citizen** in extension

31. Work to have the exemplar project along with the separate issue **of having artificer/innovation/vocational experience** e.g. as a Artificer, manager or NGO worker etc., **recognised as on a par with academic experience** in relation to advancement within for instance a University

<mark>Context</mark>

32. It is important to acknowledge that simply establishing trade, artisan, and artificer components in a second apprenticeship stream and even **establishing post trade callings will not of itself redeem the training system** as at present the economy esp. with hourly charge rates and emphasis on throughput V's custom building | thinking V's doing, does not support Artisaning or Artificing

33. It may well be that some sort of Intentional Artificing Communities could be trailed a sort of Artificing Byron Bay i.e. **a modern day equivalent of the 'cathedral town' of medieval times**

34. View **Artificing as a form of indigent knowledge that is extant within a dual economy with in the West** and as such is potentially subject to the assistances warranted under Agenda 21 for such knowledges

<mark>Epistemology</mark>-Ontology

35. Recognise that epistemologically the artificer **lenses theory through action** whereas the academic lenses action through theory.

36. **Recognition within Innovation theory** of the importance of the artificer
37. It is high time that **techne assume its rightful place** along side for instance economy, politics, religion and sociology **in the social sciences** as a proper object of social inquiry and
38. Indeed **Artificing** as the engaged contingent contrasted with the disengaged objective be **recognised as an epistemology** along side empirics, critics and hermeneutics.
39. To develop and engender support for a **mulit-centric ontology** where one 'centric' is the Artificer and others for instance the biosphere, the physiosphere, the sociosphere etc. Another way of looking at mulit-centricism is like the universe with many centres/galaxies yet none 'the' one centre.

Amplifying the bushy

40. Using the above research to identify pre-requisites for clustering/critical mass, innovation generation, diffusion of exemplar project prototypes through equitable commercialisation - as part of a **Social Innovation Process**
41. Applying Artificers processes to the **design and operations of NGO's and corporations etc.**
42. Through the media: these options include: (1) the Bush Mechanic TV series from the ABC; (2) bushie type inventors/social innovators show, similar to the ABC New Inventors show; (3) an Artificers series showing key artificers around the country a little like 'An Australian Story'; (4) competitions/TV programs such as *Escape from Experiment Island* or *Junkyard Wars* where, in both instances, teams of 5-7 folk compete using available materials + their ingenuity to conceptualise an idea, design, build and test it against a second team; (5) publish lists of Artificer exemplar projects on the web or in hard copy [Albery (1992)], in a clearing house format. See Appendix J for further ideas on amplifying the bushy.
43. Workshops organised around for instance dealing with the despair from the decline in the bushy and the empowerment needed for a comeback esp. in light of techne that can contribute to Nature as in biosphere rather than Technology as in technosphere
44. Concept of deep time in that the bushy is an intrinsic part of being human and stretches back for millennia to the Neolithic and hopefully forward if the workshops work!!

Globalisation - The artificer providing at least a:

45. **C**onstructive site of **practical dissent to present globalisation**
46. Site for **glocalistion** a counterpoint to aggressive globalisation

Personal

47. To **maintain and deepen my commitment to the Artificer/Bush Mechanic principle**
48. **To continue to do this in order to demonstrate within what may be termed ecosism, practicable ways to artifice responses to the four key dangerous presuppositions in the Preservation and Resourcist Ecology Movements [Protectionism (PEM), Resourcism (REM)]:** (1PEM) the current system of ecosystem protection through the exclusion of humans perpetuates an implicit dichotomy or duality between humans and the rest of the natural world even to the extent of continuing the anthropocentric view that these 'nature reserves' (more as 'bio museums of temporary diversity', indeed some authors viz. Bell (1995:89) extend Foucault's analysis of prisons to schools, hospitals to include these nature reserves - co-opting nature in our larger anthropocentric plan that does not include limiting our consumptive prowess) have to be 'managed' and (2PEM) excludes the importance of bon vitae i.e. the joy of life i.e. self-realisation (3PEM) while

ethnocentrically ignoring the balance that indigenous peoples have achieved, even artificed, within their ecosystems, while (1REM) accepting the counterpoint critique of the utilitarians (resourcists) that nothing is of value unless it is useful to man, and (4REM&PEM) misunderstanding the dynamically balanced change inherent in even supposedly 'stable' eco-systems. Clearly (3) and to a lesser extent (2) and (1) involves artificing.

49. To engage in a **self-actualising** person that seeks to be always changing with, and therefore in, the world and yet maintains an inner balance or equanimity no matter what the circumstances. Naess (2005/1984)

50. To maintain my commitment to a healthy diet, exercise and **spreading the word** about prostate **cancer** esp. for men over 50 and breast cancer for women over 50.

Key conclusions from this research indicate that:

1. The conventional understanding of Artificer is valid yet somewhat limited in its breadth and depth of meaning

2. The concept seems reasonably understandable to and has counterparts in other cultures esp. French (bricoleur) and many indigenous cultures

3. Grounded theory principle categories are: (1) Exemplar Project; (2) seeing the Exemplar Project as part of a Social Holon; (3) directly linking the Exemplar Project to a particular aspect of the Global Problematique while; (4) seeking to learn through the action of establishing the prototype Exemplar Project.

4. Approaching vocational and further education from the perspective of the artificer requires substantial change to the existing educational systems which are based on Tayloristic and Skinnerian mind sets within the reductionist world of analytical science with a view of commercialisation as a dimension of Globalisation.

5. An artificer approach requires a synthetic method that incorporates belief in ones agency, conceptual ability, perception, design, action, interfacing of individual components as an inherent part of the learning process, ability to build a prototype as well as testing and learning from the results thereof.

6. Artificering in operating in the physiosphere and generating exemplar projects is ideally suited for harnessing the patterns in complex space. Indeed many successful skunk-works (organisational innovation centres) operate in the 'bushy type' manner of substantial autonomy, resources, facilities, discretion, acceptance of failure (learn from our mistakes) as at best one in 20 prototypes would be fully successful and so forth.

7. Present-day socioeconomic conditions, of consumerism and learned helplessness whereby individual citizens do little if anything other than consume, are strongly mitigative against the success even survival of the Artificer. It may now be estimated that possibly around 6% of the workforce can be described as a Artificer where as 50 years ago the figure would have been around 25%. NB: workforce is a broad term that is in this instance includes home managers, part time workers and the unemployed.

8. Home economics in its ancient sense of prudential household management, may be seen as a 'cause celebre' for and of the Artificer.

9. Artificing or bush mechanicing is organised in a parallel or dual economy that is both increasingly fragmented yet strongly informal.

10. Artificer as a concept in its role of citizen activist is a dimension of normative futures and as such is an oft forgotten dimension of normative sustainability

11. The concept of Artificer has a related history through the artisan category of Artificer that pre-date the Industrial Revolution even predating the Middle Ages. It is possible that in some ways reflections of the Exemplar Project can be seen in the Medieval Journeyman's Piece which, if successful signalled the progression from apprentice to master tradesman, the artisan and ultimately master artificer.

12. Artificering as a process may well be suited to occupational therapy (in the sense of therapia - healing with growth inc. a shift in perspectives and deepened perception often against a great deal of resistance from the existing system/status quo, to embrace the emergent/aletheia deeper and wider context a change of consciousness nonetheless) and could play an important role as part of a rehabilitation of disabled people even rehabilitation through the concept of the **workshop of broken dreams or the workshop for spoken dreams, exemplar project for bespoke dreams.** Here we see the reclaiming of self and community through an exemplar project based on ones skills and the reclaiming of ones dreams and abilities.

The 12 Epiphanies emergent through the Artificer Project

These 11 items represent 'ah ha' moments for me during the 5 year duration of the action research project. Each of these epiphanies are explicated in the body of this eBook.

1. The 4 Artificer Grounded Principles
   1a The 4 Artificer Grounded Principles ~ exemplar, social holon, global problematique, action learning
   1b The Exemplar as play ~ Exemplum-techne-Exemplar - pedagogy and androgogy two sides of the play coin - Intelligent Narrative Play
2. Sauvage Dessein
   2a ESD and the Artificer ~ two sides of the SD coin
   2b ESD in Exemplar Systems Development ~ 'D'esign process through P-I-D-I-L
3. Interface
   3a Interface ~ Synergy/Coupling as meta-consciousness
   3b Interface - vertically and horizontally interfaced & integrated ~ so that the artificer a. has integrated exoteric and esoteric attributes; b. demonstrates same through the exemplar project; c. learning is thus vertically/horizontally & higher ed/vocational ed integrated (Kids & Adults Learning)
4. The Singing Tool
   4a Viva mimesis!! ~ Post-Neo-Modernity as Post-Neo-Lithic with nil archaic pejorative
   4b The singing tool ~ Techneque as deep skill (vertical and horizontal skill-sets) not Technique (a unitary horizontal skill-set competent behaviour)
   4c Mimesis, heterotechnic co-operation & dexterity ~ the trinity of the singing tool
5. The delicacy and strength of action ~
6. Watching the Grass grow ~ commercialisation is about as interesting gas watching that grass grow
7. Extinction of the Artificer
   7a The Artificer under Globalisation - an extinct species replaced by homo consmeriens
   7b Traditional craft and craft labour is dead ~ without its own 'Mates Rates'

economy or the revalorisation of the 'H'oly 'H'obby

7c The Artificer (reuse cp. recycle) ~ as anti consumerist terrorist

8. <mark>**The Washer**</mark>

    8a Exoteric and Esoteric Artifice·rs ~ Two sides of the artifice coin inc. the historic precedence in the 1356 Masons Regulations and the 1563 Stature of Artificers - London

    8b The Washer ~ As above so below -macro and micro braided viz. 'a washer has two sides' and with 'as within so without' attention to detail within matters as long as one does not loose focus on the big picture

9. <mark>**Reuse V's Recycle**</mark> ~ the artificer as anti-consumerist environmental warrior - another take on sustainability - a sort of artificer based consumer liberation front nonetheless

10. <mark>**Artificer Ontology ~ Epistemology**</mark>

    10a the *Urge to Artifice* ~ as an energy basic to, and underling the human condition

    10b Human Being as Homo Faber i.e human making (after H Arendt (1995)) cp. Homo Voro (human consumptioner) cp. animal laborauans (animal labourer) ~ through being as re-braiding thinking and doing - Ontology change through change in the learning DNA - **think $\therefore$ act + act $\therefore$ think**

    10c Artificing as Futuring ~ demonstrating today a better future is possible tomorrow for our children

11. <mark>**Zen and Art·ifice**</mark>

    11a Zen and the Art·ifice of ingenuity ~ Artificer with her ego, ingenuity and innovation

    11b Zen the Bushy NGO and the Art·ifice of governance ~

    11c Zen and the Art·ifice of humanity ~ Artificer↔Elder↔Nuffer synergy triangle with Zen/Deep Learning in the middle

12. <mark>**Emergent**</mark> ~ ……..

Appendix A – Workers Education Association

WEA letter

Following Email inquiry sent to all the above 07-02-2005 – in all 22 such letters went out electronically with one reply, which was followed up, and then no subsequent on-going follow up from the other party……

Dear Sir or Madam, (personally addressed)
Folks I have been conducting a grounded theory research project over the past two years on learners I have worked with who exhibit what I see as a WEA style learning approach.

By WEA I mean education for being both artisan and citizen – in Australia this is often referred to as a Bush Mechanic style of learning. WEA is the closest style of learning I have come to this approach – both have much in simpatico – sort of WEA for the 21st C. www.hotfutures.net.au/bushie/ also refers

If this is of any interest I am most keen to make contact and chat.

We are organising a get together to discuss this mid year. [Brisbane Australia]

Ciao paul

WEA contacts used

http://www.wea-sa.com.au/ WEA South Australia – coherent State wide system rest of Australia though now only comprises a few isolated college, largely embedded in the National Vocational Training System.

http://www.wea.org.uk/ WEA UK
webteam@wea.org.uk,dkennedy@wea.org.uk,msayer@wea.org.uk

England	national@wea.org.uk
Scotland	hq@weascotland.org.uk
North Wales*	info@harlech.ac.uk
South Wales*	weasw@swales.wea.org.uk
Northern Ireland*	info@wea-ni.com

http://www.ifwea.org/ International WEA federation see top of home page screen RHS – WEA uses Study Circles – recognised by UNESCO
- Dave Spooner, general secretary (e-mail: dave.spooner@ifwea.org)
- Crystal Dicks, training materials editor (e-mail: crystal.dicks@ifwea.org)
- Anne Webley, administrator (e-mail anne.webley@ifwea.org)
Aust link Michael Crosby mcrosby@ihug.com.au

http://www.weaillawarra.com.au/ Country NSW – early days in the late 1915 and the journeyman's piece but with an academic focus

NSW exdirweaillawarra@ozemail.com.au Eric Williams – best as far as philosophy of WEA is concerned.

http://www.weahunter.com.au/ WEA Hunter Valley Unable to link to contact only course admin contact even the welcome from the director has no email on it – pretty poor.

[WEA in Australia also means Wheat Export Association and Winery Engineering Association] WEA in NZ approached through Roger Tweedy

Appendix B - Impact of Globalisation

Some likely key impacts on Small to Medium Enterprises (SME's)

During the course of researching and writing this e-book and undertaking my own exemplar project (3 years) I have on numerous occasions both first second and third hand come across a disturbing and for me unexpected trend in the globalised competition game. That is Australian manufacturers giving the game away. Globalisation can have a number of impacts on local manufacturing relevant to this e-book. These include:

- Overpowering of local firms which are generally small scale and without the associated machinery of larger firms
- Local small 'jobbing' firms in Australia have little or no understanding of service and usually seek to change a fixed contract price, want partial payment during the manufacturing process, change delivery dates and regularly argue with the customer about what he or she wants. This situation is absolutely endemic in Australia and in a bizarre way these firms actually work against themselves in that they also drive customers overseas
- Many of the smaller scale Australian firms do not have a customer commitment rather only at best product orientation so that when demand is high quality of service is allowed to fall and professionalism is ignored if it ever was understood
- Often don't have a service or quality policy (external to actual quality certification which unfortunately means little in terms of these issues)
- Local manufacturers often don't have a tradesman's commitment to seeing the job through let alone an artisans focus on detail and seldom if ever an artificers ability to integrate the product both at installation and use points
- Indications are that for instance on an indicative basis onsite delivery to Australia costs for Indonesia are 20%, and China 30% of the Australian manufactured cost per unit - excluding establishment and compliance costs and including import duty
- Australian craft labour costs are 20 times those in Indonesia or China and technology + assembly by unskilled labour can and is replacing much craft based labour and associated manufacturing - this is what in Japan is called 'the long hollowing'.

Australian cp. Indonesian manufacturing cost comparison 1995-2005

Table 19: Appendix B: Table 1 - Illustrative comparative cost of manufacturing Australia (Sydney) cp. Indonesia (Jakarta) 1995-2005

Source: Company: Custom Power Boats and Portable Building Manufacture Plant operating from Nov 1994-Nov 1997 in Jakarta Indonesia (Indon)

Aspect of Manufacturing	1995 [Aust | Indon]	2005 [Aust | Indon]
Labour/Materials proportionality in the per unit price		
Labour % in each produced unit (Aust)	45% | 10%	55% | 07%
Other costs % eg. oncost, tax, compliance	35% | 05%	40% | 06%
Materials % in each produced unit (Aust)	15% | 15%	05% | 12%
Gross Rate of Return	05% | 70%	02% | 75%
$\sum$	100% | 100%	100% | 100%
Estimated Rates of Return		
Gross Rate of Return [Total Revenue less gross costs exc. Tax)	05%[1] | 70%	0% to -5% | 75% [2]
Company tax rate [Aus| Indon]	30% | to 8%	30% | to 8%
Costs		
Costs - Labour costs		
Weekly wage in Aust ($AUD) viz. craft labour \| Indon ($AUD)	500 | 035	1000[3] | 0045
% Indon of Aust wages	7%	4.5%
On costs		
On costs Aust | Indon	35% | 05%	40% | 06% (max)
Compliance Costs		
Compliance i.e. BAS; OH&S; Award conditions; IR [Aust | Indon] index Aust 1995 =100	100 | 20	150 | 20
Cost of Materials Aust = 100 [4]	100 | 95	100 | 95
Cost of Distribution to main market Aust=100	100 | 010	100 | 010
Cost of Exporting	100 | 80	100 | 70
Productivity		
Productivity of Aust worker | Indon Worker	X | 0.75X [5]	X | 0.75X
Building Labourer productivity Aust | Indon	X | 5X	X | 5X
Market within 500km of production		
Pop: Aust (Brisbane) | Indon (Jakarta) Million	2.5m | 100m	3m | 125m
Middle class	2.0m | 50m	2.5m | 60m
Security concerns addressed		
Aust | Indon [6]	100 | 80	100 | 40
Where have the security sums been done properly?[7]	Aust & Indon	Aust & China
Δ [change& development]		
R&D (index Aust 1995=100) - Invent	100 | 50	70 | 50
Capacity to Innovate (try new things–aside to or parallel with compliance) [Aust | Indon} index Aust 1995=100	100 | 500	80 | 600
Strategic Response capability i.e. from Aust Small to Medium Business Enterprises (SME's) to changing international circumstances cp. Indonesian SME's	100 | 200 Aust Training Reform Agenda (from 1987)	80 – Aust meme complex [7] | 250 [FTA]
Aust small business change focus	Survival	Compliance &survival

Source: Paul Wildman and Don Miller No. 5 23-01-05 comm. 21-10-04

NB Inflation was in Australia stable during this period however real costs in 2005 need to be decreased by some 50% do give a direct 1995 comparison, however the economic meltdown of the late 1990's in Indonesia (which in part led to the introduction of democracy) was accompanied by high levels of inflation that have stabilised from the early 2000's.

1 Globalisation started biting in from the late 1980's on so much so that by the early 1990's there was little or no *net return* in over 90% of Australian SME's *just making a living* ie drawing a wage and meeting compliance costs. In this period 1987-1990 a third of the SME's Don knew set up in Jakarta and in Australia seven small businessmen Don (manufacturer over several years and with several factories in Sydney of portable buildings and boat trailers) knew of personally in Sydney all in the Chamber of Commerce and in manufacturing and well respected killed themselves as their business slowly failed around them. This initiated the mass exodus offshore from the late eighties till mid 90's (when all the business that could have had left Aust and a large proportion went to Indonesia) to Asia to produce. Result: In the 1890's to early 1900's Australia was the largest manufacturer of agricultural machinery in the world now, with the imminent closure of Austoft later this year (2005), it produces absolutely nothing in Agricultural Machinery

2 Since meltdown of late 90's early 2000's the country is hungrier

3 Well over award necessary in Aust to attract good staff actually quoted at $1200 now in mid 2005 this is nearer $2000aud.

4 Cost of Materials globally set so no essential difference between Aust and Indonesia

5 Because the Australian worker is better educated, more technologically savvy, better trained, immersed in a technological environment

6 Indonesia / Australia, however Indonesia won't get investment until it sorts out its security issues - which new president might get serious about. The relativities, however, are the same elsewhere in Asia (eg in China where they have 'got their act together' better than Indonesia).

7 Australia's small businesses (90% of Aust businesses are 'small') are to a business generally operated in a bone numbingly dumb manner with no interest in strategy, no link to the big picture, no sense of mutual interests or actions, no awareness of these issues, no political clout, no community connections or forward thinking this is due to the Aust Meme Complex plus compliance as in the above table plus surviving as in the above table. In all this the Australian response to international competitiveness seems to be 'training' via the ATRA (Australian Training Reform Agenda - 1995-2005) and the FTA (Free Trade Agreement) in Australia is just accepted as a fait accompli yet it represents the further decimation of small business as wage rates etc. in China are even lower than Indonesia. Here the Exemplar Project can be seen as an instance of embodied Memetic insurgency and the bushy as memetic guerrilla [Wildman, P., *Identifying Australia's Meme Complex - Learning's - a personal and professional futures perspective on a generation of experiencing the systemic blockages in working for socio-economic change in Australia*. 2004, Prosperity Press: Brisbane. p. 13.]

Table 20: Appendix B -Table 2: Specific item cost analysis comparison for 2005 in manufacturing - Australia cp. Indonesia

[a widget selling in Australia for a competitive price point of all up $200 in 2005 and costing all up just over. $170 AUD with a comparative figure of $50 AUD for Indonesian manufacturing – drawing from Table 1 above]

	Aust costs $AUD	%TNM	Indonesian costs $AUD	%TNM
Labour inc. admin	60	50	03	17
Oncosts	30	17	01	05
Compliance	10	08	01	05
Tax	20 (tax rate 30%)	17	10 (tax rate to 8%)	50
Insurance	07	06	01	05
Security	01	01	03	17
Total Non Materials (TNM)	128 or 85 %of sale price	100	19 or 10% of sale price	100
Transport [1]	08		03	
Materials	35		30	
Total	171 (4/5rs) out of $200		52 (1/5th) out of $200	
Avail for π (profit)	1/7th or 15%		4/5ths or 80%	

Source: P Wildman V3 17-05-2005 no. 1 16-11-2004 TNM-Total Non Materials 1 Aust has a small market and large distances whereas Indonesia has a large market and small distances. The widget is essentially for the Aust market though so price here for Indonesia is an overall average inc. shipping. Indonesia would send to market via individual capital cities via shipping not by bringing to one site in Aust and then road transport as road transport is simply too expensive given the distances involved. Thus the cost difference is minimised.

– The Artificer in the context of our Longer Term Exoteric Futures – Exploring some Emerging Issues related to our Economic Futures over the past 20 years into various scenarios for our 2050 future, with a brief examination of their level of sympatico with our Artificer

On taking a Futures Perspective

A key focus of my futures work over the past 20 years has been on emerging issues. Emerging issues is a method of tracking emergent aggregate tendencies or intentionalities before they become revealed trends or actual events. Generally speaking futurists need a method of organising incoming information (EIA – Emerging Issues Analysis) and then to introduce this organised information (e.g. emerging issues) into a depth meaning making matrix such as CLA – Causal Layered Analysis. Inayatullah (1998), Wildman and Inayatullah (1996). On this basis I have been tracking some 20 Emerging Issues for 20 years. Wildman (2001). This section reports on the outcomes of one of these tracking processes – the future of capitalism as seen in the emerging issue of future of work, the emergence of micro credit, role of community or local economies.

Initially as a tracker on the high probability of an economic correction commensurate with the economic tsunami of 1929, Wildman (1999), subsequently, in the early 2000's this focus integrated with Community Economy Development as a thrival (thrive/ survival conflation) response to this crisis in late capitalism. Wildman (2001). And finally the two themes have been braided in this project especially Scenario's 5 and 6 below.

Exoteric Futures refers to the rational discourse of logic contrasted with for instance Esoteric Futures inc. things ranging from palm reading, channelling, mediums, tarot cards, spiritual-magnetic fields, eschatology and so forth.

Macro Economic Scenarios 2050

Scenario 1: More of the Same – Happy Nappy Valley angst

Here the griding down of the mass of people into the flatland, the increasing destruction of the environment and desecration of Gaia continues apace. But such a path as the one we are on with globalisation triumphant - bushies (-+) suitable for quaint interest in the bushies hall of flame.
Learning is expert, elitist, reductionist and pedagogical and generally unsuited to artificer learning.
Bushies fit: Not needed, modern bureaucracies will do the trick – bushies seen as a danger to society
Probability: considering the state of the planet in 2005 a most unlikely scenario]

Scenario 2: Techno-utopia – Star Wars goes remote

Here globalisation is also triumphant and has harnessed technological change to assist it. All is produced by technology which also makes most of the decisions i.e. sentient computers and orgoboids (human computer integration entities).
See http://www.accelerationwatch.com/ .
Scenario 2a Utopian - Star Wars goes remote;
Scenario 2b Dystopian – Terminator wired in parallel
Learning is largely unnecessary as sentient technology now does it for us – reality is just a computer game away.

Bushies fit: Bushies don't fit into this scenario
Probability: *probable* with the promise of globalisation in say 1990 now 15 years on at least an unlikely yet wished for scenario]

Scenario 3: Economic rebirth – the new Jerusalem

Localism rekindled – this is the age of local economics – bushies (++++) can thrive here. Wildman and Schwencke (2003)
Learning is at the heart of community and is based on Adult and Community Learning Androgogy principles most host positive to the bushie and artificer learning.
Bushies fit: Bushies thrival – bushies into thriving survival here
Probability: possible and desirable yet *most unlikely*

Scenario 4: Pax Americana reigns – Attack of the Blob

The dream of the neocons for the 21st century to be Americans century wins through the torture and violence of Afghanistan and Iraq and so forth – corporate America the American corpor'a'nation triumphs – the economic rationalist reductionist positivist version of globalisation has won – bushies (-------) are hunted down and eliminated.

Check out   http://updates.takingitglobal.org/read-comments?UpdateID=24768 Where Naomi Klein in an article from 02-05-2005 edition speaks of a Last summer, in the lull of the August media doze, the Bush Administration's doctrine of preventive war took a major leap forward. On August 5, 2004, the White House created the Office of the Coordinator for Reconstruction and Stabilization, headed by former US Ambassador to Ukraine Carlos Pascual. Its mandate is to draw up elaborate post-conflict plans for up to twenty-five countries that are not, as of yet, in conflict, but with a little help from Uncle Sam may just be in the next couple of decades or so. According to Pascual, it will also be able to coordinate three full-scale reconstruction operations in different countries at the same time, each lasting five to seven years.

Learning is something important but for the economic elite which is mainly white, male, 50+ and is about the continuing the classic pedagogical split between thinking and doing.
Bushies fit: Bushies and Artificer Learning do not fit it here.
Probability: *most unlikely*
The Blob a 1988 horror/Sci Fi (Science Fiction) movie where a huge amoeba (unintelligent and undifferentiated sort of macropod single cell life form) attacks earth

Scenario 5: Crash and burn – the economic recursion into Soylent Green

Here the crash of scenario 5 occurs but recovery is not possible esp. in the West which by 2050 is profoundly interdependent and yet simultaneously dependent on cheap imports from the Confucian commonwealth of China, Taiwan, Korea and Japan – bushies (+) can just survive here they find out they need a bushie network of mutual aid assistance as in the last great depression in 1929
Conventional learning here is largely irrelevant and considered dangerous in terms if its track record (massive failure), effectiveness and waste of resources, the informal bushie/artificer learning avenues start to multiply.
Bushies fit: Reasonably well bushies a necessity for survival
Probability: *likely*
Soylent Green a 1973 science fiction movie is about a future where disused people are recycled as food i.e. economically speaking this means we eat rather than co-operate/aid with one another.

Scenario 6: Economic Pole Inversion – Planet of the Apes

The new economic ice age – bushies (+++) can survive here but tragically most folks won't be able to survive.

Learning: Intensely difficult in any structured way as survival comes to the fore. **Bushies fit**: bushies/artifice learning does well here though by necessity rather than choice – these are not happy times

Probability: *quite likely* – the humanist version of Scenario 4

Planet of the Apes 1968 – a world where apes are in charge and humans do their bidding

Overview of scenarios: bushies fit reasonably well into 3 of these 6 scenarios. Scenario 6 is considered the most likely in the above time period and all the above scenarios need a 'displacement event' and I suspect that may well be as explicated below, and within the lives of our grandchildren.

The author's position on globalisation

Globalisation is considered an economic 'go(o)d' to varying extents in all the above scenarios esp. in the initial stages. As a 'good' in economic theory as it produces more in aggregate as price per item falls so demand increases and thus more can be purchased and thus utility, which is a direct function of consumption, increases in aggregate as more consumption occurs. Furthermore trade regulations have the effect of removing largess from the equation e.g. Japanese farmers on 1000% import duties for competitive produce, and forcing the removal of non competitive practices – all good stuff but taken to an extreme it kills and eats its host.

The few arenas left where globalisation is not seen as potentially 'on balance' a 'good' are retro socialist lefties, deep greenies, permaculturists and autonomous local economy developmentalists.

My position is between the two, globalisation, like Competency Based Training (CBT) has several positive dimensions however at present the negatives far outweigh the positive. It is in my view, the policy weakness of the nation stage governments that has ensured globalisation do more harm than good.

The author's position on: commercialisation

Commercialisation now reaches into almost every aspect of life – human relationships, sport, even charity. Traditionally many aspects of life were beyond a narrowly conceived economic trade relationship. Indeed in many traditional village communities and indigenous communities even today this remains the case – the economic system is not even strongly developed yet alone prime. In the informal system exchange occurs without having to be in commercialisation or for profit (win/loose) basis.

Today the few remaining arenas where commercialisation has not reached strongly are some inner family relationships (the conventional marriage vow of 'in richer in poorer', whereas the village has long gone), some religious vocations and charities, and the Artificer's exemplar project, and concepts such as love, commitment, determination, mutual aid, some aspects of the community economy. Even within these categories there are substantial differences in that a Artificer for instance does sell his labour but not at commercial rates in a not for a living but not for profit situation whereas religious orders have the macro structure of collective ownership of property however the individual sisters and brothers serve at not cost other than food and lodging.

Like its compadre' globalisation, commercialisation has up-sides and down-sides. Within limits it suggests that an activity needs be considered as generating as much economic energy as it uses. Yet its measurement of the good remains economic and this is its

limitation. The economic rationalist mindset however insists that if it does not have a commercial dimension it is not worth considering as worthwhile.

The authors position on: Corporatisation

This is the 'for profitisation' of goods and services previously provided by the public sector. Clearly globalisation, commercialisation and corporatisation are braided together and are part of the one mindset. Corporatisation is generally associated with a corporate structure and business identity wherein the corporation has the same legal status as a living human being and as such is entitled to similar rights and protections under law. The great differences are that corporations are for profit, hierarchical, bureaucratic and in stable environments massively successful.

Once again corporatisation has its place however when combined with the other two listed above it seeks out and destroys local industry, aggregates from smaller to bigger and removes the local, and obsesses about profit above people.

Scenario 6 Revisited: The Coming Economic Pole Shift - An Economic Dark Age for a globalised world 2050

Anticipated 15-12-2004 - by 2050 there could well be an economic inversion whereby third world countries become first world and vice versa as the first world countries will have little purchasing power and third world nations all the productive capacity. With the Yuan up to 50% undervalued @ 01-07-05 (the Chinese Government deliberately pegs the exchange rate in this manner and has done so for the past 8 years), the largest economy in the world, the US, is in a catch 22, because as cheap Chinese imports flood the US in an economic Tsunami, American producers are closing shop at increasing rates and the corporations are moving to Shenzhen to set up massive world scale production for under 10% of the cost in the US (for instance see the previous two tables in this Appendix on production costs in Indonesia), the manufacturers call for a revaluation in the Yuan.

Implications of Scenario the coming economic pole shift
So far so good, however once this revaluation occurs the size of the Chinese economy doubles to the largest in the world and so the involution of first to third world, mentioned above, will commence apace as demand for the Chinese Yuan increases as it increasingly is the common denominator of world trade. This will initiate an almost immediate collapse in the American economy as it carries a huge deficit to the world, is intensely active militarily, and can only function in this regard because the US dollar denominates global trade.

The global commons to globalisation means a no regional or social differentiation i.e. globalisation brings into the acceptable actions (as a sort of follow on from colonialism) the harnessing of differentials in economic potential e.g. a developed nation with high per capita come has a higher economic potential than a third world nation with low wages but the third world nation has technology, via. corporations and internet, and cheap capital. Consequently it produces stuff for cheap and sells to the developed nation causing the competition in the developed nations to close.

Intriguingly given this is pretty much on the cards today a long shot would be a 'sovereignty loose – economically tight' Confucian federation including Korea, Japan and China, in the last half of this century embedded in a FTA type area agreement. This would obliterate the US and endanger the emergent EU economy. Australia of course will be dragged down by the US on its coat tails.

Possible Responses to the coming economic dark-age viz. in scenario 6

A small research project I undertook in the early 70's in interviewing about a dozen folk, inc. my parents, who had gone through the depression about how they survived and what skills they used to do so. The survey completed as part of my second year economics assignment in regional economics, clearly indicated the way through interestingly in overview, was to be a public servant (fixed income) or a bushie (innovate and fix your own).

Globalisation thus brings about a certain homogenisation in production and products as fewer and fewer massive corpor'n'ations produce the majority of what we watch, consumer and do. Thus this e-book argues that globalisation may be linked to the decline of the innovative (read bushie) society, and even worse decline of innovation potential, with a severe reduction in local economic diversity in the economic ecology and much reduction in the vibrancy viz. the economic potential of a particular local area.

This leads to an increasing dependency on central corpor'n'ations for sustenance and we have the emergence of modern-day economic serfs. A pernicious late capitalistic feudalistic system ultimately headed by corpor'n'ations increasingly Chinese in origin all with ruthless impact on wages and conditions.

Sustainable eco-bushie-villages are another response with high levels of participation and effective strategic means to generate innovation along high levels of self sufficiency. Here learning systems will need to be artificer style rather than anything goes yet in a sense a bushie can get anything to go!!!!

Advocating for a world public service of volunteers a sort of world wide Active Peace Corps is another. Assisting communities, companies, and groups undertake resilience building bushie type projects. Here peace is conceived as much more than just the absence of war or repairing infrastructure thereafter.

Interface of citizens rights groups to allow them to overcome their content focus and link through the process issue of citizens' rights. For example recreational fishing groups, horse riding, bee keeping, sustainable development and so forth.

In all the above to greater or lesser extent a bushie type capacity is important. It is not the answer and in many cases may well be no more than 10-20% thereof nevertheless it is one part of an answer.

We owe our children's' children nothing less than to try.

Appendix D - The Artificer in the context of our Longer Term Esoteric Futures - the Artificer as seen in part in Masonry, and Alchemy

Author's Note: The sections on Wild Science, Artificers in the Middle Ages and the Esoteric Artificer are speculative and complementary to, not derivative generative of, the primary thesis of this e-book. [The concept of Artificer as used in this e-book arose as a grounded one and was developed, as detailed histographically in this e-book, independently by myself around mid 2002 as directly reflective of an 'ideal' learning process esp. for adults. It does not directly draw from these pre dating concepts as some sort of reconstructed neologism. Rather I strongly put to the reader these are a case of parallel processing and although temporally separated they all point to a path least travelled in globalised objectivist learning systems. By this I mean they all draw from, and move towards, the same source - that of how humans best learn to learn best. It is left to the reader to determine the ex post and ex ante lineage, and contemporary relevance, of the e-book's Artificer concept. This concept remains as ever provisional and at best 'through a glass darkly'. Many if not most of the authors sourced in these sections, and in the e-book in general, are far more intellectually and literarily competent than myself]

Please Note: this theme is presented here in overview only to illustrate the length, breadth and especially depth of links that the concept of artificer has from an historical point of view. I claim no special insight or initiation into these matters and in fact I remain quite ignorant thereof whilst seeking to recognise their importance.

The Esoteric Artificer today ~ towards Sacred Activism

Importantly today we find the West has abstracted thought towards Plato's heaven's rim so to speak and as such the exoteric has become abstract and non-organic i.e. ungrounded i.e. esoteric. Thinking has become rent asunder from doing - both vital for exoteric harmony. We have let this travesty of esotericism happen under or noses. The concept of esotericism used in this eBook is that of grounded consciousness (depth) this requires de rigueur grounding sky spirit and earth soul and fractal integral 'as above so below', 'as within so without'.

In the sense that the Exoteric Artificer or Artificer addresses herself to the manifest world one may see this as related to a particular consciousness and as ones depth of consciousness changes then so does ones remit as an artificer - from exoteric to esoteric. Here esoteric as in Sacred Activism is seen a deepening (vertical) understanding of the world around us to include physical, psychological and ultimately spiritual dimensions (often called 'rays'). So it is not either exoteric or esoteric, rather it is exoteric in esoteric as in sub set and set respectively.

In terms of the four principles of Artificing one may understand as exoteric. The exoteric - esoteric progression may be seen as determining the general principles underlying the four principles as outlined for instance in the following table.

Table 21: Comparing the Exoteric and Esoteric attributes of Artificer Learning

Artificer Principle	Exoteric Understanding	Esoteric Understanding
1	Exemplar Project	Redemptive Heuristic
2	Social Holon	Consciousness
3	Global Problematique	Planetary evolution
4	Learning	Degrees of Initiation

Source: P Wildman Q1 2007

In many indigenous cultures, for instance the Australian Aborigine, there are up to seven degrees of initiation (especially for men) reaching into the mid 30's. At each initiation ones understanding of the task at hand for the tribe and ones position in and relationship to are transformed into deeper transcendent meaning. That is in many regards ones level of

consciousness deepens. In this sense ones understanding of the tribes, and thus ones, position in the cosmos deepens in line with the dreamtime myth/story that the tribe is part of. Campbell (1972), (1974), (1988). So the inner and outer worlds as well as the individual and collective dimensions are integrated through the degrees of initiation. So in this sense initiation is a sort of 'degree of integral being' similar to but not completely in alignment with Wilber. Such initiations re-integrates or 're-ligio's' that is 'religions' ones mental, spiritual, physical attributes of the artificer onto a higher or deeper plane of understanding (head heart heels). The ultimate artificer in a cosmic sense is the demiurge - the Christ, the Buddha, Allah - who shapes the world of manifest form, the world of our lived life.

The Medieval Exoteric Artificer

The word 'craft' is derived from the old English word 'craeft'-- 'skill'. That is; the craftmason's ability to combine mind and hand with dexterity in the performance of an art, as does an artisan or artificer. The European Craft Guilds which emerged from earlier roots in the 11th century developed into sophisticated organisations during the middle- ages, uniting those workmen or women engaged in the same trade over a wider area. Goldsmiths, Metalworkers (Hammermen), carpenters, weavers, masons etc. With the growth of towns and cities, the Guilds formed a most important and vital element in the social structure of the times. In the larger towns the Merchants Guild would often provide a Guildhall. Other forms of guild emerged such as the craft guild and service gild. Members were divided into Masters, journeymen, and apprentices, whilst aiming at regulating terms, standards of trade, production, and conditions of apprenticeship. They also gave help and support to needy members and their offspring, 'the Craftchilder'.

The Stonemasons Craft, like that of the Carpenter and Blacksmith, is as old as our civilization. Wood and stone are the primary building materials of the Northern World. During the middle ages it was the practice of the above three trades to denote a man 'free' when, through years of training he had finally exhibited his journeyman's piece [*chef-d'oeuvre* - noun - French - an outstanding and ingenious work] in order for it to be adjudged a 'masterpiece' by his peers and thus an exemplar of his special art and thus gained his Masters Certificate (degree) and could now set up shop as a tradesman and employ apprentices. Artificing then is seen as high artisanship and combines through the journeyman's piece an exoteric dimensions (a - physical/practical/skill/technological; b- social/collective/mutual) with an esoteric (a -inner meaning/quest; b- transforming the external world endeavour) dimension.

The Mythic Artificer - Hermes

Source: adapted from Encyclopaedia Britannica 2003

A more ancient link may be found in the Green god Hermes (500BC+), and even more anciently as the Egyptian god Toth may also be suggested. Hermes who like the artificer was committed to his tasks – head, heart and heels – being the only Greek god having wings on each of these areas. An artificer needs commitment in each of these areas – head for understanding, heart for commitment and heels for technical capability i.e. to walk the head talk and outwork the commitment.

See Appendix D for further information in regard to the esoteric aspects of Ancient Artificing. Further Hermes acted as psychopompus i.e. guide to the netherworld, from this world through the interface to the netherworld – if ever there was a god of the interface Hermes is it. Hermes was also a bit of a larrikin and practical joker as well as scribe of the gods recoding their trans'actions this is the link to Toth retrospectively and to the God Mercury prospectively in Roman times..

In Hermes Trismegistus Hermes have a medieval offshoot who lands squarely in the realm of the emergent Artificer and propounds alchemy – a type of ultimate artifice indeed not only changing ideas into works of functional beauty but the alchemist transforms base metal into gold a metaphor for an esoteric transformation in the human – the ultimate philosophers stone. Masonry and Alchemy were linked e.g. sites/organisations such as the Royal Arch Masons (intriguing name given the origin of the masons involved as it was in the construction of the stone cathedrals in Europe reliant as this was on the stone mason's and a speciality thereof was the stone arch developed in Roman times.

Therefore, Hermes, that great author of the hieroglyphic doctrine, elucidating many things, chiefly about God, and His perfections, also of the creation of the world, and its design, preservation, of the administration of the same world and its parts, both by Himself, and through his angels, and the Patriarchs about the government of the world, endeavoured seriously to penetrate these things.

In reflection of the great eternal Artificer .e. Gods Demiurge the Gnostic Artificer who designed, created and administers the world, to this we need add the great profit/advantage the Patriarchs had by these machines and mechanical inventions and their skill in mathematics; as well as their making statues that moved their eyes and head, to express approbation or disapprobation. Hence it came, that in the course of time that religion conceived by Hermes Trismegistus in a sincere sense, was by degrees degenerated into open and declared idolatry.

Source: adapted from http://www.yorkriteofcalifornia.org/royalarch/raeduc007.htm
Before Pythagoras, Socrates, Plato and Aristotle there is said to have been a philosopher/priest who gave rise to inductive reasoning and was the forerunner and basis of all subsequent philosophical and religious thought. He is given the name of Trismegistus Mercurius Hermes and also known by an Egyptian name, Thoth. It may well have been that this was a school of philosophy and not attributable to a single person.

This philosophy is simply referred to as Hermetic and according to Manly P. Hall in this site is one of the main influences upon the symbolism of Freemasonry. Hermeticism is the earliest Western concept of Universal Wisdom as inspired from one supreme source. It is a reflection of the individuals own relationship with God, derived from a new beginning and seen from the new perspective. Further Hermeticism explores through good works and study Universal Truth and seeks to conceal it in allegory, symbols and good works (exemplar projects or journeyman's piece).

See also Wildman (2002b), Wildman and Miller (2004) and (2006)

Evidence of Artificers in Asia 1000BC

– the Dionysiacs of Asia Minor
Source: drawn from http://www.freemasons-freemasonry.com/Mackey_symbolism_fr.html and also http://www.sacred-texts.com/cla/dart/dart00.htm

The above site quotes authors such as Mackey in *The Symbolism of Freemasonry* arguing that there were also parallel systems of Artificing in Asia esp. Asia Minor called the Dionysiacs of Asia Minor who were an association of architects, engineers and artisans who had the privilege likewise of building temples and importantly public infrastructure such as stadia or theatres.

Those Ionians who emigrated from Europe to the maritime countries of Caria (Asia Minor) around 1000BC, and also the Dorians now called Dionysian Artificers, after Bacchus was supposed to be the inventor of building theatres, inc. building temples at a common expense. Dionysus also called Bacchus or Liber was the god of ecstasy, the Theatre of Dionysus is considered the prototype of Greek Theatres.

The Ionians built the temple of Diana at Ephesus, the Dorians that of Apollo at Tripoli, where at a certain period they repaired with their wives and children, and there performed sacred rites, and had a market, likewise games, races, wrestling, music-parties of different kinds, and made common offerings to the gods. What they had designed and built was then used for community purposes inc. performing the spectacles and the business of the market, or fair. Further they used the structure to fulfil towards each other the duties of fellow humans, if there was any litigation between the cities, they sat as judges to settle the dispute: moreover, in these assemblies they debated as to the war with the barbarians, and the means of keeping a mutual concord amongst the nations.

The Dionysian Artificers existed also in Syria, Persia, and India; and the Eleusinian mysteries were preserved in Europe, even at Rome, until the eighth century of the Christian era. Their instructions run principally on holiness, equity, justice, economy, policy, the distinction between real good and real evil; of what is indifferent, what we ought to pursue or to avoid. The three fundamental maxims of their morality are, 'the love of God, of virtue, and of our neighbour.' After this epoch, Europe was visited by the most barbarous nations who, persecuting every scientific research, scattered a general darkness, in which all the labours of the ancients, in favour of mankind, were nearly lost, in the general ignorance of their times.

Those very societies and sects had also been in former periods much abused, and the ceremonies converted, as we have seen, for the worst of purposes: this was another powerful cause for their decline and ruin. Christianity was then in Europe, the only bond of morality, by which power could, in some measure, be controlled, or restrained.

When the sciences began to revive, a general fanaticism prevailed, and a spirit of persecution appeared, which caused the ancient doctrines of philosophers, and the old systems of morality to be regarded only as offspring's of atheism, and practices of idolatry. Under these circumstances, the Eleusinians, the Dionysian Artificers, Assideans or Essenians, sunk into such oblivion, that no mention is made of them in history.

In the tenth century, during the wars of the crusades, some societies were instituted in Palestine, and Europe, which adopted some regulations resembling those of the ancient fraternities of the Dionysian's. But is was in England, and chiefly in Scotland, where the

remains of the old system, identified with that of the Dionysian Artificers, were discovered in modern times.

Source: adapted from http://www.sacred-texts.com/mas/bui/bui07.htm
The religion of the Phoenicians at this time, as all agree, was the Egyptian religion in a modified form, Dionysius having taken the role of Osiris in the drama of faith in Greece, Syria, and Asia Minor. Thus we have the Mysteries of Egypt, in which Moses was learned, brought to the very door of the temple of Solomon, and that, too, at a time favourable to their impress. The Hebrews were not as such architects, and it is plain from the records that the temple--and, indeed, the palaces of Solomon--were designed and erected by Phoenician builders, and for the most part by Phoenician workmen and materials. Josephus adds that the architecture of the temple was of the style called Grecian. So much would seem to be fact, whatever may be said of the legends flowing from it.

If, then, the laws of building (design re. architects and construction re. stonemasons with angles, curves and so forth) were secrets known only to initiates, there must have been a secret Order of architects who built the temple of Solomon, then who were they? They were almost certainly the *Dionysian Artificers*--not to be confused with the play-actors called by the same name later--an Order of builders who erected temples, stadia, and theatres in Asia Minor, and who were at the same time an order of the Mysteries under the tutelage of Bacchus before that worship declined, as it did later in Athens and Rome, into mere revelry. As such, they united the art of architecture with the old Egyptian drama of faith, representing in their ceremonies including the murder of Dionysius by the Titans and his return to life. So that, blending the symbols of Astronomy with those of Architecture, by a slight change made by a natural process, how easy for the master-artist of the temple-builders to become the hero of the ancient drama of immortality.

Traversing Asia Minor, the Artificers entered Europe by way of Constantinople, and we follow them through Greece to Rome, where already several centuries before Christ we find them bound together in corporations called Collegia. These lodges flourished in all parts of the Roman Empire, traces of their existence having been discovered in England as early as the middle of the first century of our era. The members were of three orders, novices not unlike apprentices, fellows, and masters, or colleagues.

Indeed one may well remember that Christianity, whose Founder was a Carpenter, made thus a mighty appeal to the working and labouring classes of Rome. Its appeal was hardly heard in high places, but it was welcomed by the practical people who were weary and heavy ladened by taxes and war service etc. to the Romans. Among the Collegia it made rapid progress, its Saints taking the place of pagan deities as patrons, and its spirit of love, mutual help, and collegial fraternity, service to the needy and detailed attention and application to crafts. All this welding men into a closer, truer, and perhaps here we have the origins of the guilds and in particular 'free'mason lodges and the labour unions.

A possible Middle Age esoteric/exoteric interface – Artificing, Alchemy & Masonry

A contemporary interface

In terms of the contemporary relevance of this section I have been working with two colleagues in this regard Marielle Jansen sociocracy@aol.com from the Netherlands and Iona Miller iona_m@yahoo.com from the USA. Marielle specialises in the application of sociocracy (an evolutionary improvement in democracy) in organisations and Iona on 'chaosophy' - a philosophy based in chaos and complexity theory. In these working relationships I am very much the apprentice.

And behind all this artificing energy and vitality there is a driving force which in Christian terms can be seen in the Bible's God's remit to subdue the world - this term actually means shape, form and govern rather than control, repress and dictate to. In this sense there can be seen to be a biblical call to what has been called in this e-book - artificing.

The following represents a reasonably common view about the esoteric artificer/bushie.

We are all both master and apprentice (or servant) on our individual pathways, only in relation to different people or even beings, both on the lower and the higher levels of evolution.

It is said that '**When the chela (apprentice) is ready, the master appears**'. We have generally found this to be true, and in this sense the artificer is a Master of Wisdom on the 'esoteric plane' of existence.

Here the exoteric and esoteric interface in the Christos tradition with the apprentice carpenter shaping a house interfacing with the demiurge shaping worlds as houses for life.

In hindsight possibly we can all see that there have been so many opportunities that stared us in the face while we did not even notice. This suggests that the master may appear through a situation, as an occasion for things to be learnt and understood presents itself – this is the esoteric interface with the **Exemplar Project**. Generally folk wait till there is a 'displacement event' such as a death, disease, tragedy, divorce job loss and so forth before asking deeper questions. Whereas the exemplar project gives us an opportunity to help others and help ourselves while learning concrete skills which can grow to wisdom.

More often than not these situations take the form of crises in which 'the inner master' emerges. The inner master recognises opportunities for progress along the path of evolution and initiation, this is the part of esoteric apprenticeship, yet this is not necessarily registered in the brain. Nevertheless, this vague awareness of 'something beyond the rational happening' will eventually lead to a deeper understanding of, and emergent wisdom about, a world beyond all outer appearance. The rate of progress along the path depends on the congruence between the inner and outer paths, ie the group that the inner master is allowed to have on the physical (including emotional and mental) body.

Our own paths continue and have included herbal lore to Anthroposophy, to Buddhism, to the Rose Crucians to Theosophy, to Sociocracy and to Masonry, Ananda Marga, Esoteric and Exoteric Christianity and Chaosophy. What has become ever mor clear to each of us is that we grow spiritually through serving others. **[the exemplar project as a social holon]**. The question of 'how to develop my own personality' gradually loses importance. As the focus shifts to 'how to further the development of mankind', the grip of the inner master on the 'outer vehicles' becomes more secure, making his service more powerful.

It may well be that the definition of a Artificer indicates that **Artificers is/may be a spiritual path in itself**. (Artificer then is a predilection to enact innovation with regard to the human good.) Although this is not precisely the answer to your question, it may be the answer you are in fact looking for.
So all you need to do on the path of a Artificer is think about the solutions that bush mechanics may offer to certain problems of humanity and then, of course, implement these solutions. The triple concept of '**Idea – design – implementation**' coincides with what I found in esoteric literature, 'Discipleship in the New Era', part II, by Alice Bailey, p. 281. It says there that 'ideas need to be brought down to the (1) **abstract levels of thought**, where they form the (2) discipleship through **blueprints** (symbolically speaking), before the creative process is set in motion that will provide (**3) their perceptible existence'**.

(This is translated back into English from the Dutch version, so I am not sure about the original wording). It is exactly as you say in: 'Skilled in the sense of being able to undertake the efficacious linking of the specific skill with the overall big picture in the context of experience in the overall design process of - Idea | Design | Implementation'.

Our conclusion to all this is that the path of the Bushie can also be a spiritual one.

A more ancient interface

Source: adapted from http://www.yorkriteofcalifornia.org/royalarch/raeduc007.htm and http://www.ancientquest.com/deeper/2002-krm-rosslyn.html.

These sites clearly show the link between Hermes, Alchemy/Gnosticism and Masonry inc. the Kabbalah, the Knights Templar and the Arthurian legends.

Intriguingly Isaac Newton [1642-1727] wrote more on alchemy (still unpublished) than he did on Mathematics. Like Hermetics the Knights Templar were hybrids, combining earthly skills at contest with an esoteric aim of protecting the grail and the exoteric aim of helping the needy. Living in interface leads to hybrids, which in many regards the originals between which the interface exists originally were. For instance language such as the English language is now a global language yet in the early 1600's it was hardly recognisable from its several progenitor languages from which it absorbed much of its vigour, vocabulary and worldviews.

With the breaking up of the College of Architects and their expulsion from Rome, we come upon a period in which it is hard to follow their path. Happily the task has been made less baffling by recent research, and if we are unable to trace them all the way much light has been let into the darkness. Hitherto there has been a hiatus also in the history of architecture between the classic art of Rome, which is said to have died when the Empire fell to pieces, and the rise of Gothic art. Just so, in the story of the builders one finds a gap of like length, between the Collegia of Rome and the cathedral artists, the artificers of the Middle Ages.

While the gap cannot, as yet, be perfectly bridged, much has been done to that end by Leader Scott in *The Cathedral Builders: The Story of a Great Masonic Guild*--a book itself a work of art as well as of fine scholarship. Her thesis is that the missing link is to be found in the Magistri Comacini, a guild of architects who, on the break-up of the Roman Empire, fled to Comacina, a fortified island in Lake Como, and there kept alive the traditions of classic art during the Dark Ages; that from them were developed in direct descent the various styles of Italian architecture; and that, finally, they carried the knowledge and practice of architecture and sculpture into France, Spain, Germany, and England. Such a thesis is difficult, and, from its nature, not susceptible of absolute proof, but the writer makes it as certain as anything can well be.

While the site does not positively affirm that the Comacine Masters were the veritable stock from which the Freemasonry of the present day sprang, 'we may admit,' it says, 'that they were the link between the classic Collegia and all other art and trade Guilds of the Middle Ages. *They were Free-masons and ultimately 'journeymen' because they were builders of a privileged class, absolved from taxes and servitude, and free to travel about in times of feudal bondage.*' [italics PW]

Source: adapted from http://www.yorkriteofcalifornia.org/royalarch/raeduc007.htm From the earliest of times man sought herbs and remedies from his environment to cure sickness and injuries. The Medicine Man or Women assembled this knowledge and passed it to successive generations. Much of this knowledge preceding 2000 BC was passed on

and found its way into the culture of early society. Preoccupation to find a Philosopher's Stone and the making of gold, silver and precious stones filled the minds of Greeks and Egyptians alike. Democritus (circa 450 B.C.) is said to have gained much knowledge from a Hebrew woman named Maria and the information preserved. We need to make a jump past the Arab, Caliph Omar in 640 AD to his attempts to discover the transmutation of metals, the Elixir of Life, his experiments with Mercury, Sulfur and Salt and the use of symbols for the elements, chemicals, constellations, beasts, man, woman and other properties.

From the Witch's Cauldron and Merlin's Secret Potions through an evolution to the early Christian era of about 100-150 AD in which a Spiritual aspect was developed, Alchemy evolved to interest the minds of some of the great 15th to 17th Century scholars like Culpepper, Dee, Newton, Bacon and Ashmole. These works took enormous effort both in terms of resources and physical labour mixing the potions and long hours of continuous experiment stretching over years. It was these and many other European Alchemists who began to write prolifically not only about their experiments but also on the philosophy of how the Universal and human Spirit could be improved. It is this Alchemic philosophy that is concealed in symbolism and interwoven with Hermeticism to give us a Western Mystical Tradition. It is this Alchemic philosophy that also drives us towards the great work of transmutation (exemplar project or journeyman's piece) that can be part of the elevation of the human spirit.

In some circles Alchemy and Artificers are seen as synonyms and examples of high order craft combing esoteric and exoteric skills in this instance in the most practical sense of craftmason's.

A possible Pre-history esoteric/exoteric interface: Is humanity hard wired for spirituality but not theism?

Only 4% of hunter-gatherer societies and only 10% of simple horticultural societies have a concept of an 'anthropomorphic creator god concerned with the moral conduct of humans' Taylor (2005:201). It is a spirit-religion that precedes polytheism, the goddess and importantly the god concept and this it is a pure form of religion - greater and deeper than any god-religion maintains D H Lawrence.

Likewise just because a culture is not patriarchal doesn't mean it is matriarchal or because it doesn't worship a God doesn't mean it worships a goddess these dualities are remnants of a Cartesian epistemology, one that didn't exist in prehistory. This pre-theistic stage of religion can be seen one of a natural kinship, a consanguinity that connects humans with plants and animals, the planet and the cosmos. Taylor (2005:204-207). Indeed this worldview sees the whole cosmos as alive and in contact with the flesh and blood of men and women in their lived lives or lifeworld - there was no room for the God or Goddess ideas, indeed no seam between the holy and the profane, between thinking and doing.

I would argue that humanity is hard wired for this contact for this seamless interface for this pre-fall eternal now awareness and perception. Spirituality in this sense is a transformational system that doesn't destroy human agency rather systems of spirituality, have little if anything to do with God, Goddess, redemption, original sin and the fall. This transformational system helps us overcome our sense of separation, psychic entropy and how to re-connect even re-meld with the spirit force. Religion el ar (for instance) Freud and Marx, in this sense, is more about relieving our psychic suffering from separation, than it is about spirituality. Taylor (2005: 213)

Spiritual Artificing

In this sense spiritual artificing has four dimensions both crucial in this e-book. **One** is within the Juedo-Christian tradition of the discrete 'M'aster artificer via. the Demi Urgic Field (DUF) or the Christos holy spirit of 'intelligent design'. The **second** can take a 'primal spiritual' perspective on this same energy field and see us as located therein in contact with our skin, while the **third** is chaos theory with fractal geometry where local self organising development/evolution or autopoiesis can occur without any over-reaching intelligence or telos, while the **fourth** is simply the conventional evolution as blind chance or as Dawkins (1986) puts it the blind watchmaker - no telos here comrade. The third dimension option is closer to the Neolithic Artificer the first dimension closer to the Christian creation story while the fourth, which is and is not a spiritual position, is the conventional scientific one. All of these, however are at odds with present day concept of evolution of consciousness which continues to posit tacitly that the higher one gets in consciousness/mind the further away from matter/artificing one becomes. This hyperised-theism simply forces the catastrophic rent between thinking and doing further and further apart until we reach Plato's heavens rim where we can discourse on 'T'ruth with disembodied Gods.

Resurgent Scientism

Science may well have taken on the role of explaining the world to us however the deep psychic angst from the fall remains and religion still seems necessary to salve this pain. Today this resurgent scientism may well be seen as scientheism. But wait science el ar evolution, that classic biological chance genetic based algorithm, is under challenge. Today we have the intelligent design option.

Appendix E - Objectifying Interstice – Extending the concept of the Artificer

Interface speaks of the thing between. If we move a step beyond interface we come to see the space between the two faces as a thing in itself – interstice. Sun Tzu (The Art of War 500BC:144-147) was giving advice some 500 yrs BC on the military value of secrecy. He wrote a great deal about the concept in terms of its strategic value in winning wars fast and at little cost. The Chinese character he used for secrecy means 'the space between two objects' the gap – the inside void – insider knowledge.

.a Feminist theory – meaning from interface

Here we need to look at the gaps 'out of the silences' to build theory and the assumptions underpinning it – ie its not what we are doing that's the problem its what we aren't that's the issue. This is what Feminist Theory does. The silent ones the voices not heard the ideas not raised. Those and the languages not listened to. In a system failure as catastrophic as Erebus or ADIC we must be challenged to find a better way a real way. We have to listen carefully for voices not heard including those for ever silenced – for the gaps in dialogue – for spaces between the facts, for non models and outlaw theories – outside and inside the status quo – for interstices. This is fertile ground for theory building often starting from local theory.

.b Bionomics and Spectral reserve – holographic fractal coherence from interface

If ones heart beats completely consistently one dies. If ones heart beats incoherently one dies. The space in between is called the zone of spectral reserve. This spectral reserve is the reserve one has to vary ones heart beat in accordance with a fractal pattern. The heart beat pattern then becomes a strange attractor in chaos theory terms.
All organisms live in **this interstice between complete stasis and complete incoherence – here is life, the tidal flats between high and low tides.** This is what de Hoc (who gave the world the Visa card) calls chaordic.   He applies chaordism to organisational development.

Coherence as an extension, or holistic understanding, of interface speaks in broad terms of interface as ecology even a form of bionomics - a 'ecology' of biological and economic relationships between (1) an organism e.g. human and its artifice e.g. boat, (2) the artifice and environment e.g. the biological environment for its/the boats operations and (3) the organism and its biological environment e.g. human at sea and preferably not in it (so to speak). When the 3-D aspect is included we may see the artifice as in effect a holographic fractal bionomy which, rhetorically speaking may be seen in the biblical terms of 'by the fruits of (their labour) ye shall know them'. (added - PW) Matthew 7:16-20. Here fruits represent concrete outcomes in our day to day world so that these, the mundane or exoteric lived life, have sublime, esoteric all of life significance.

.c Radar – charting interface

Radar reflections come from the surface of and travel in the region between the interface with a solid object. Likewise seismic and sonar soundings come from reflections from objects of significantly different density to the propagating substance i.e. water V's steel. Whales and bats use interstice technology - sonar.

.d Interstice - universalising Interface
.1 Through meditation

Gawler (2003) a very well known Australian cancer survivor is a strong advocate of psychosomatic and dietary regimes in a preventative and even therapeutic role in

addressing cancer. He takes the idea of interface to suggest that behind the interface the crack between two subsystems we can through meditation find a background energy. A little like (a) a peg board with a lot of posters velcroed there to so that behind the focus of folks attention ie the poster display is the background peg board only visible between the posters, (b) clouds moving across a blue sky where the clouds represent thoughts and the sky the peg board of universal light behind our various life forms . This is the focus of much meditation and is the silence between the thoughts.

The following are instructions taken from Dr Gawler's CDRom and are in fact for the person doing the meditation. So from this Gawler's perspective and exemplar project is not so much a collection of 'things' bolted together for the consumer to use, rather it is a collection of 'interfaces' synergising with the background energy/life force – interface syncretised into Exemplar Project.

Let sounds be like white clouds drifting by they come and go with their own rhythm effortlessly, notice what thoughts coming into awareness let them like clouds come and go are they pictures or hearing as worlds or feeling as sensations or combination, notice how they come into your awareness, each thought has a beginning, middle and end - runs its course, notice the common segments of each thought, notice the **interface** between the thoughts, that moment of stillness, seek to extend this moment from an interface to a gap to a stillness to an awareness that the silence points to a larger silence as a background on which the thoughts hang or move across like the white clouds clinging onto, and moving across, the blue sky - of the silence in the background is like moving our attention from the clouds to the sky.

Seek to determine where the silence is around you e.g. like a screen in front or to the side is it one or two dimensions - usually these Spatial Stillness Focus Points (SSFP's) are two dimensions over a period of weeks or months of practice. Here the sky represents us - vast unclouded sunny and the white clouds are our thoughts and even on cloudy and stormy days we know the blue sky is above the clouds.

Be aware of the place where the stillness is the most spatially obvious around or within you. Become aware of your **Own Central Point (OCP)** is located. At your OCP the impartial observer, fly on the wall or what is often called, **The Witness (TW)** is located now bring your OCP - can be third eye, heart or head or hands, and **Spatial Stillness Focus Point (SSFP)** together one to the other or the other to the one or to a common joint point, wrapping or penetrating or enveloping or merging or I-Ching'ing - up to you. Here we have the duality of you the observer and the stillness as being separate and that need to be integrated.

.2 Through evolution

What Gawler provides us is a method to separate structure and processes i.e. thoughts and being – clouds and the background blue sky, and for Artificers components of the exemplar project and their interface. This background process is a critical one and can be used to separate for instance species from the background process of evolution that keeps mixing and matching evolved genetic changes. In this sense evolution may be seen as the blue sky behind the individual clouds/thoughts/species.

.e Interstice - spiritualising Interface

Extend this concept of the interface as the relationships between two things i.e. two faces and we see interface not as a thing in itself but rather as a relationship. Extend this a tad and we engage 'the Tao of the gap' and the Tao of the Interface which is a face that is not a face. And so forth into metaphysics and the esoteric thesis. It is out of this gap that creative potential emerges the gap forming what may be called the Demiurgic Field.

It is the contention that this background integrative action orientated interface filed is the generative one even the morphic field of Sheldrake (1994) or Wildman and Miller's DemiUrgic Field (DUF). Wildman and Miller (2004), (2006).

Appendix F – Zen and the Art·ifice of Ingenuity – some background notes

Backgrounding Zen

The Japanese, who developed Zen philosophy may well have been created to induce the long-lost spontaneity and feeling of beauty, who came closest to eco-poetry, indeed a poetry that embeds humanity in Gaia.

D.T. Suzuki wrote that the aspects of this 'exemplar Zen' life are a life of: humility, labour, service, prayer, gratitude, and meditation. Zen is a branch of Buddhism, originating in China, which strongly emphasizes the practice of moment-by-moment awareness and of 'seeing deeply into the nature of things' by direct experience, dharma or 'zenergy'. In effect 'artificer' then represents an expression of this 'will to artifice' or zenergy, and indeed could be seen as a sort of Zen koan that can only be resolved/understood by changing, and not changing, ones consciousness and its outworking in line with Dr Suzuki's above points. For instance in what ways is the exemplar project the sound of one hand clapping? [EP & ESD - Exemplar Project and Exemplar Systems Design].
[**Daisetz Teitaro Suzuki** (October 18, 1870, Kanazawa, Japan – July 22, 1966; standard transliteration: **Suzuki Daisetsu**, was a famous author of books and essays on Buddhism and Zen that were instrumental in spreading interest in Zen to the West.]

This analogy is just that - an analogy - and can't be pushed too far, nor is it meant to, however it does illustrate the link through contemplation and service between the day to day world and the deeper world of understanding, meanings and metaphors.

Zen and the art of car polishing - to do without doing

The movie and TV series 'Karate Kid', wherein a young boy learns from an elder the art of Karate to defend his agency. The learning is deeper though than the immediate punch or kick sequence and covers the philosophy of life i.e. the ontology from which such a view draws. In fact is it is the Zen Buddhist approach that enables this link between being, doing/not doing and thinking/not thinking. The movie shows the relation between work, philosophy of life and spirituality.

For instance consider a young person polishing a car, first by just following instructions, then second without being aware of the fact that the mere movement of his hands in the indicated way was building a skill that was going to be useful in quite a different way and then by seeking to understand the reasons behind polishing as well as learning to distinguish between the instructions on the can and those of a master polisher, and then to see how the act of polishing and the background reasons are one and finally polishing by the movement of his hands.

Here 'to do or not to do' echoes Hamlet's soliloquy 'to be or not to be' yet it could well say 'to do and/or not to do' and ultimately 'to do AND not to do'. One may also say this koan like statement as 'to think and not to think' as per the young person above. Here neither doing nor thinking is the principal lens or focus or perspective from which one views the other. For instance in the conventional sense ones lenses action through thinking. Nor does this Zen style approach favour one or the other rather it reaches beyond to where they both meet/braid/intertwine/meld. Here the action viz. 'to do' and thinking viz. 'to think' are contexted from a higher level accessed by evocative questioning to reveal ones intention prior to setting ones direction so to speak. [reveal-bring forth-uncover- French 'engendre'-aletheia (Heidegger)].

This then may be restated as 'to think and to do AND not to think and not to do'. Thus we have the resolution even transcesion of the dualities as itemised in Chapter 11 in the section on the Great Transition, The Great Divide and the emergence of the Great Dualities. So here we move from lensing action through theory (conventional cognoscenti) to lensing theory through action (artificer) to lensing action and theory together through ingenuity and consequently the Zen moment of the eternal return. [NB: The Abrahamic faiths tend to be too trenchantly dualistic not synthetic i.e. you are for me or against me, you are saved or not (and you die), and consequently are not used in this eBook as a metaphor for ontological transcendence. Esoteric Christianity and Sufism of course do have some elements of this synthesis of the dualisms so to does Chinese Taoism with its associated I-Ching.]

Artifice in Zen and Masonry

It is the 'instructed way' that Artifice learning shares with Zen and for that matter Masonry. Masonry had its very origin in medieval Europe in the artisan masonry required building of the cathedrals. If you trust the 'master' you are serving, you are willing to follow his advice, even though you do not see the point though ultimately you realise you will realise the point, so long as the 'master' is attuned to the, and your, wider and deeper good.. And in return the Master considers the apprentices point of view with respect. In fact this is an old fashioned way, a traditional one. Indeed such an external master is not always necessary to show the way to higher levels of consciousness, the inner master can take the lead.

I depart from the position that intuition trumps intellect or vice versa. I'd like to compare this Zen puzzle to a maze on paper, as in a children's puzzle book. When you do not start at the entrance, as usually indicated by an arrow, but from the centre, it is much easier to find the way to the entrance than the other way around. Likewise, it may well be easier to find the appropriate intellectual line of reasoning to fit in with the intuited matter than starting out on a collection of facts and figures and their associated action e.g. polishing a car, using the intellect to finally extract a conclusion that leads to the same 'revelation'. Intuition, thinking and action braid together – being, thinking and doing.

I gladly ventured out on a new exploration, of the word 'ingenuity' this time. It has something to do with the words genius and engine, genuine, integrity, sincerity, bring into existence, frank and fragile, and engineer even inborn and freeborn. French 'engendre' = 'to bring forth' is also a more profound expression for the process learning. Viz. sui generis (its own class) = self-made man – artifice makes the person.

Some major spiritual figures over the millennia all have the embodiment aspect i.e. Christ was a carpenter, Mohammed a merchant.

Zen and the Art·ifice of Ingenuity

Now the 'artifice of ingenuity' can mean three things:
- A thing generated by way of ingenuity – the Exemplar Project, or
- Ingenuity as a thing in itself, created and used by an artificer in undertaking the Exemplar Project
- The process of human development and empowerment that enables the individual to become an Artificer.

[Artificer Learning in the sense of the project means just this with the exemplar project bring both an embodiment of ingenuity and a thing that generates ingenuity]

The former meaning is much more suited to a conventional understanding of artifice – the aggregation of skills to a certain master tradesman status to work with, as it can be described or depicted within the accepted limits of an intellectual approach. The latter,

however needs a presentation of ingenuity itself as itself and even a consideration of the artificer involved.

Indeed the intellect is too short a yardstick to fathom this phenomenon, which is why to be sized up it needs the plane of intuition, which is also the plane of archetypes, where there is vision, contemplation, morphogenesis (the birth of forms and synthesis), as well as the plane of experience, instruction and application, which is where I suggest the exemplar project (exemplar zen garden) exists. The title for this eBook and an important influence on this Appendix has been Robert Pirsig's 1974 classic Zen and the Art of Motorcycle Maintenance - an inquiry into values.

Zen, e'Nuffership, Artificership and Eldership

A key extension even transcendence of the Artificer is the Elder. This extension is beyond the scope of this eBook. The Elder in this sense represents the personalisation of wisdom in action as exemplar in the role of mentoring while choosing ahead wisely. Clearly a further link as exemplar lifestyle is living with in ones and ultimately Gaia's means knowing when enough is enough. By linking them as in the Figure below we can hopefully obtain a certain harmonic or rhythm.

This Figure is by way of illustration only and its elaboration is beyond the scope of this eBook, it does however indicate that three of the key 'person' attributes identified in this project starting with the artificer concept can be linked as part of a deeper and transcendent perspective on life. Clearly this would also involve certain mentoring and initiation processes even which have been all but lost from Modernity again the 'pagan', the 'archaic' is pejorative. This 'initiation' could well draw from analogies in the martial arts and computer gaming as well as recognising its Middle Ages and Neo-Neolithic lineage.

This challenge has been started by authors such as Wilber () and Ross Welch (2008) however the full challenge still remains ahead of us. For Wilber for a change to be transformative or 'integral' each of the four quadrants have to be present viz. ULQ - I - the Artificer; URQ - It - the Exemplar project; LLQ - We - the Elder; LRQ - Its - e'Nuffer; and for the change to stick it MUST have a strong component of LRQ the eNuffer. Eldership in this regard contains the four quadrants.

In the following Figure several of the various principles of Zen are represented; first Zen becomes the higher principle of transcendence shown in the star burst in the above Figure, where the starburst becomes the next level that is the vertical consciousness embedded in deeper understanding (reactive, proactive or in the now) of transcendent meme embedded in the Exemplar Project for instance. Then Zen dimension can be seen in the concepts of 'doing without doing', as well as operating in the non formal or informal system. One such holonic expression is the artificer holon and its intervolution in the eNuffer holon which inturn is intervolved in the Elder holon.

Further Schumacher (1974) argues that in the coming crisis people will behave in one of two ways (1) more of the same with incremental change and (2) people who implement a new lifestyle folk we could call the eNuffers who incorporate Exemplar Projects into their individual lifestyle in a way that can sum to more than unity. He calls these people 'home-comers'. He concludes 'in one way or another everybody will have to take sides in this great conflict'

As Einstein has said one can't solve a problem from within the system that created it. And it is the dualities of modernity's flatland thinking that we will have to leave behind and move from the first-tier world centric, both and, holarchic governance that we must embrace.

Zen and the Artifice of Ingenuity in the Bush Mechanic, eNuffer and Elder

In this regard there are three manifestations of ingenuity and its links to intuition viz. Zen and the Art·ifice of the Ingenuity of the: (1) Artificer as in Bush Mechanic (2) eNuffer (someone who practices 'enough is enough' in limiting ones consumption and increasing ones self reliance and household production 'prosumerism') and (3) Elder (someone who acts ahead wisely). Crucially each of these three areas can operate on an individual or principle basis, for instance (3) can be an Elder as an actual person or Eldership as a principle exercised individually or collectively. In holonic terms Eldership then contains the 'lower' holon of the individual elder.

Figure 5: Zen in the Trinitarian rhythm of Artificership~e'Nuffership~Eldership
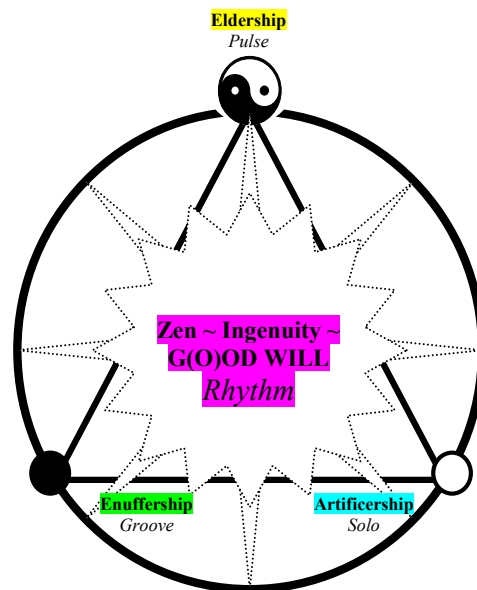
Source: R Welch 01-2008

Source: R Welch (2008).

This transformative (**Bushy-Elder-eNuffer) Artificer System** comprises three (w)holonistic subsystems: the *Elder-ship,* the *eNuffer-ship* and the *Bush Mechanic-ship*. These interactive systems operate on the same four principles identified by Wildman in his grounded research (this document Wildman (2008:Ch 7) and are equally inspired, energised and activated by *Awareness, Attitude* and *Action synergising into Good Will in the centre.* It can also be said that in carefully contrived concert these systems bring forth the same Awareness, Attitude and Action, which then allows the contrivance to effortlessly transform into an organic, living, breathing entity.

In this instance of **Exemplar Systems Development,** the Elder-ship, eNuffer-ship and Bush Mechanic-ship action-inspired states of principledness, heartfeltness and mindfulness, indicated by the suffix "ship", are exemplar-ified by the three dimensions of artificer in the action examples of seasoned (1) Elders, (2) eNuffers and (3) Bush Mechanics. For instance (1) the artificer Elder or elder-ship implies an initiating Principled State-of-Mind to exemplar-ify 'acting ahead wisely', whereas (2) the artificer eNuffer or eNuffer-ship denotes an inclusive State of Heart and balanced sustainable self sufficient consumption, while (3) the artificer Bush Mechanic or Bush Mechanic-ship entails grounded or hands-on wise action. **Please Note:** The Elder, the eNuffer and the Bush Mechanic are Artificers in their own fields; whereas, The Artificer, in a transformative sense, only emerges through a thorough hands-on understanding and appreciation and plays an essential role in Elder-ship, eNuffer-ship and Bush Mechanic-ship i.e., this emergence requires the acceptance that, in symbolic or archetypal terms, the Elder, the eNuffer and the Bush Mechanic are interacting sub-systems, representing the higher conscience, the nurturing instinct and the developmental will shown as the starburst in Figure 5 above also called Zen and

Goodwill, such being humanly inherent in the individual and facilitated by the **Exemplar Artificer Systems Development.** Welch (1988).

As previously implied, as well as issuing out of an atmosphere of Good Will, the transformative **(Bushy-Elder-eNuffer) Artificer System** can effectively arise out of a carefully designed and implemented contrivance. This contrivance, which could be called the "pseudo Bushy-Artificer" system, is illustrated above in Figure 5. Further explication of this deepening of the Artificer concept is beyond the scope of this eBook and it is hoped that this can provide an avenue for further action research.

Appendix G - The Delicacy & Strength of Action - some aspects of the importance for Philosophy of including abstract questions *& concrete answers* in a theory of knowledge

Intro: Action has Horizontal (breadth/arenas for action) and Vertical (as in depth/meaning/layers of causation/consciousness) dimensions. In order to present a basic position these distinctions will be noted and not drawn. Furthermore action is distilled into individual and collective our actions and various structural outcomes of the operations of society. For example actions can be concretised in an intentional manner in things such as the Exemplar Project. So any understanding of the Artificer Exemplar Project requires an understanding of the key context for same and that is action viz. attributes of action.

Conventionally what philosophy has done is to refine the questions of knowledge without giving us concrete answers, for which we have had to turn to science. Plotkin (1993:19-20). In this e-book such concrete answers are seen in exemplar projects. Philosophy to the great detriment of the west, in my opinion, has never turned its attention to action in the concrete. The furtherest it seems to go in the Anglo scholarly tradition is to argue that my writing is my action. Thus choosing as indicated above to vaporise and abstract and problematise and situationalise and analyse knowledge which is denominated textually and defined exclusively as rational thinking which is seen as distinct from the folk experiencing of the lived life. This is especially the case now that technology is the key driver behind social change. Post modernism would have to be the exemplar project of such abstruse abstract questions about knowledge with no link to the concrete answer.

This appendix cannot claim even to attempt an abstract answer the question in bold above as simply I am not intellectually up to it, however I could posit a few aspects of the concrete i.e. actional that may be relevant to a broadened conceptualisation of epistemology. Rather the appendix respects the lived life and seeks to outline several cognitive aspects of the concrete i.e. of action. So for me knowledge is not simply cognitive and thus epistemology by definition has mentative and actional components.

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The Psychology of Action (POA 2)

The Actions of Action (AOA 5)
1. **Action of Action** – action is the antithesis of thought – when acting one's thoughts are generally constrained and very much vice versa. In fact considering the complexity of the attributes of action as enumerated here human action can be seen as much more complex than simple thought. Indeed any action we take can do differing extents be seen as having these attributes to varying extents embedded within it. Thought and Action are somewhat reflexive – a sort of yin and yang moment of being.
2. **Delicacy of Action** – finesse required in each sub-routine e.g. fishing, surgery [each needs to consider and simultaneously embed in resultant actions considerations of:

environment, intent, design plan, sequence, capability and efficacy, diverse sub-routines, capabilities, support (human and resources), mistake implications, peer-group perspective, professionalism, personal integrity, collective ethics, learning potential]

3. **Interface of Action** – operational systems and design process interfaces e.g. between sub routines (see above) and between action in different design arenas e.g. a motor, a boat, the load, a driver, the conditions and the purpose

4. **Concreteness and duration of Action** – action is concrete as it eliminates options by enacting one and literally actually occurs and when it does it is for a specific time thought the ramifications thereof may last a lifetime

5. **Aggregative nature of an action** – each action is an aggregate of action sub routines eg fishing as well as aggregating or cumulating on previous actions and needing future actions to complete

The Politics of Action (POA 4)

1. **Exoteric political nature of action** – (a) since action rearranges resources it is by its very nature political; (b) since consumerism requires conditioned responses rather than action in the sense of our discussion here, then action re-establishes the relevance of local action self reliance and mutual aid all of which challenge monopoly and consumerism (c) since the vast majority of people today do not seek the nitti gritti skilled challenging application to task that action requires over an extended period. The politics of consumerism and couch.

2. **Esoteric political nature of action** – (a) since the big picture no longer makes sense esp. to the mass e.g. me folks do not have a big picture (except killing people) to anchor their mundane actions in, (b) since action is pejorative in the western epistem and thinking is supreme locating the locus of authenticity for being in efficacious acting ahead wisely challenges the mindset/epistem and to a small extent addresses Arendt's (1963, 1995) call to re-link thinking and doing as the challenge of Modernity. The politics of the epistem.
[The above 2 points puts someone seeking to locate authenticity in this manner outside 99% of society even futurists organisations – *by their works shall ye judge/know them* is now indeed rarely applied]

3. **Origins of analysis for action** – from local or from global considerations

4. **The organisation of action** – from a bureaucratic (power over – regimentation & hierarchy) or democratic/collective (power with) organisational perspective

The Opportunity Cost of Action (OCOA 2)

1. **Exclusion of alternatives of Action (either | or)**once an action is taken a separate action is excluded – this makes the opportunity cost argument particularly notable for Action i.e. what is the next best action I could do cp. this action and am therefore forfeiting by doing this action – actions here cause silences there

2. **Logistic and the cruciality of action in the context of the 'D'esign cycle** of: priorities | idea | design | action | learning – action requires the ready availability of resources to conduct the action (action = implementation)

The Learning From Act'ion (LFA 1)

1. **Criticality of Learning being subsequent to Action** (action learning) or prior to Action (conventional school based education) – action/simulation – my view.

The Artifice of Action, its Artificer, Ingenuity and Artifice (AAA 2)

1. **Interface between Action, acting, artificing, actioning and art** – the Italian artisan mason is considered the equal of a sculptor or artist

2. **Artifice expressed through Action** – action can have a creativity, artisan ethical dimensions consciously however in our culture that deifies all nuances of thought such nuances as these in action are generally tacit or unconscious

The Intents Of Action (IOA 5)

1. **Appearance of action to others** eg. consider the actions of, and how they are meant to appear/be interpreted/mean to others of: someone escaping prison, magician, shoplifter, actor, writer
2. **Embodied priorities/intents of Action** an action distils and concretises ones priorities
3. **Exemplar nature of action as it reveals ones intention, ethics, and integrity** – e.g. Ghandi's salt walk, level of right livelihood e.g. sustainability of an action etc.
4. **Intent of Action** – Instrumental (immediate mechanical – pick up an apple, pull a trigger) and/or strategic (see below) and/or normative (moral – in response to the question 'how should we then live together?')
5. **Strategic Intent of Action** – outcomes to be interpreted as an intervention in the event, systems, world view, story layer, and in the context of:
    a. *Simple* [cause-effect linear & sequential; Action =sense-categorise-act],
    b. *Complicated* [c-e separated in time and space yet can be researched; Action = sense –analyse-act]
    c. *Complex* [c-e does not repeat and is unpredictable yet anticipatable in terms of patterns and fractals; Action = sense-probe- act] – butterfly beating its wings effect, and
    d. *Chaotic* [no cause effect relationships can be perceived; Action = act-sense]

The Psychology of Action (POA 2)

1. **The meaning and intent of the action to and by the '**actor' – can be plural eg public spectacle; and to others
2. **Agency expressed with and through Action** - action rather than thought demonstrates a preparedness to take and express individual agency

Appendix H – Optimum Governance and the role of the Artificer

Background

This appendix is in overview form only and is drawn from my experience in the Civic Integrity Development Association (CIVIDA) for a three year period from 2001-03, which required weekly 1/2day meetings and a similar amount of time between meetings for research and field work. And substantive reading and email exchanges over the period 2001- present. The list is not meant to be exhaustive or doctrinaire more an indication of the key arenas for consideration as we seek to move forward towards a more locally representative and truly participative form of governance. In short the areas to note for inclusion in the successor to democracy.

Artificers is a type of socio-technical innovation process which nests in a national innovation system for social and hard technology, which nests in a socio-economic development system which nests in a governance system. It is this latter system that is outlined below space does not permit moving beyond this.

Definition: In overview good governance (social or organisational) needs a method of equitably involving everyone in making serious collective executive sustainable decisions with understandable information in ways that respect local autonomy and based on human rights and responsibilities of individual citizens and organisations in ways that ensure distributive justice while enhancing and improving the governance project (process and content) itself. [PW 12-01-2006] The Artificer has a role in three of the seven imperatives.

The Eight Imperatives of Good Bushy Governance

1. Sociocracy

Governance of large small to groups – for group interface, conflict pre-emption and resolution ethic – such a paramount governance ethic should be the step beyond democracy and be fractally scalable from small to large scale and vice versa http://www.sociocratie.nl/ . Endenberg (1998), (1998). In sociocracy good governance is addressed by prior agreement about: (1) decision making - consent principle, (2) direction - strategy/steering via. the circle organisation which in which each component is fractal-like made up of the Learning | Transforming/action | Measuring/Learning, (3) transparency - double linked circles and (4) representation - only via. group consent. Endenberg (2006).

2. Information filtering

Some ways of reducing information as it works its way up the levels. This might be along the lines recommended by Stafford Beer (1973), (1974) for Chile under Salvador Allende's presidency. Beer is a truly remarkable human, a planetary treasure nonetheless; Beer is frankly the only true Systems Artificer I know of. He single-handedly long before the advent of computers and large TV screens, system designed the Chilean economy and had built actual systems design control centres with display screens and seats with the ability to monitor and question what was on the screens. The screens displayed systems information for the politician leaders and department heads by way of graphs and bar charts that related production etc. to the planned or anticipated levels.

Furthermore he instituted a most profound autopoiesis in that plant mangers only needed to notify their superior when the gap got to a certain point either up or down and only then if the gap exceeded this did it go to a higher level so that exceptions were managed without it necessarily being a decision of the Departmental or political head. And it worked. My

personal hunch is the CIA was as much after the destruction of this System Artificing as they were after Allende.

3. Justice

Clear commitment to **human rights and human responsibilities** of individual citizens and organisations and a civic education inc. integrity development to ensure thus cp. punitive rules and regulations. Based on a system of distributive justice and the Moral Imperative using the Golden Rule, separation of roles inc. judiciary, government, policing, church etc.
UN Declaration of Human Rights http://www.un.org/Overview/rights.html
UN supported Declaration of Human Responsibilities
http://www.aph.gov.au/house/committee/jfadt/dialog/dial_ap4.pdfs

4. Political administration

Legislated and constitutionally recognised local autonomy based on direct individual sociocratic participation inc. community economy autonomy with a glocal focus not nation state focus – to be reflected in successor to the UN and its operating procedure (sociocracy see 1 above) – ultra reduced role for the Nation State and its associated bureaucracies – simultaneous local and global focus i.e. either and without the need to reinscribe bureaucracy. The **Artificer Approach** has a small role.

5 Change and Development - Social Innovations Process (SIP)

Primarily Success seeking not Risk Avoiding i.e. not Risk avoiding by excluding the individual and enforcing the bureaucratic the complementing of soft and hard technologies, i.e. a socio-Scientific innovation process covering hard and soft technologies – **Artificer Approach** a substantial role in any SIP which includes the generation of innovation, which, as the quote below argues is inherently social; as well as the direction of innovation which can be for instance towards hard or social ends. Such a SIP includes the I-D-I process of Idea - Design - Implementation discussed elsewhere in this e-book. [for instance see section Bush Mechanic Principle - BMP1h The design heuristic for the Exemplar Project]

All innovation is social and a subset of this is social innovation. Consider the following to see how 'business' and 'bushiness' intertwine:

> *When employees sit chained to their desks, quietly and industriously going about their business (not bushiness), an office is not functioning innovatively or even efficaciously. That's because innovation ... is fundamentally social. Ideas arise as much out of informal conversations as they do out of formal meetings. More precisely, as one study after another has demonstrated, the best ideas in any workplace arise out of causal and informal contacts among different work groups within the same company.* Florida (2003:126).

The Artificer approach fits the post 2000 Innovation Society of Kauhanen and Noppari (2007) as recommended for the European context post 2000 indicated in the following table.

Table 22: From Industrial Economy to Innovation Society at last a space for the Artificer

Source of Innovation	Industrial Economy to 1950	Information Economy to 2000	Innovation Economy & Innovation Society post 2000
Role of Citizens	Citizens as workers and consumers of mass products	Citizens as consumers of mass media content	Citizens as innovators and co-producers
Relevance of Artificer/Bushy	Nil	Emergent e.g. as the source of open source software etc.	Substantiative and structurally embedded

Source: Paul Wildman 01-2008 based on Kauhanen and Noppari (2007: Ch2.8)

6 Sustainability

All the above to be articulated and enacted in ways that enhance the deep sustainability of Governance and move it from sustainability to **creative evolvability,** here Community Economy Development (CED) is an important dimension – **Artificer Approach** a significant role. CED then is a context for the bushy and bioregionalism is then a context for CED.

7 Constitution

The above principles are to be contained in **constitution** which aims at protecting the attributes vital to the body politic. Also included in the constitution is the meta-constitution incorporating procedures required for changes to the constitution itself inc. legislated local autonomy – inc. community economy with a Glocal focus not nation state focus, to ensure citizen participation in, and resource provision for, essential socio-technical service provision inc. community economy, housing, health and education. The constitution to be carrot and stick i.e. rewarding the behaviour we want tomorrow as well as penalising the behaviour we don't want yesterday.

8 Triarchy

Triarchy is a system of organisational structuring based on the view that there being three prime ways of getting things done in organisations and from this it may be argued to a substantial extent in cultures. The interaction seen in society between **hierarchy** (conventional social organisation), **egalitarianism** or heterarchy (so called skunk works for intense periods of innovation and scientific research) and responsible individualism (research group/prototype development team leaders, artificer). Fairtlough (2005). Here one may consider what the interaction, in organisations, between hierarchy, heterarchy and responsible autonomy might be, were the hegemony of hierarchy can be removed while retaining its advantages and 'natural' analogues.

Responsible autonomy allows an individual or a group to decide what to do, but is accountable for the outcome of the decision. It might be called 'no rule', or rather, no external rule. The existence of accountability distinguishes responsible autonomy from anarchy. Examples are: privately-owned businesses that operate autonomously, providing they satisfy their creditors; and basic scientific research, in which principal investigators are free to choose their line of enquiry, providing it leads to results judged valuable by peer-review. It is the last form of organisational and possibly social existence - responsible autonomy - that closely parallels the Artificer/Bush Mechanic and is expressed in her Exemplar Project.

The problem with the ubiquitous hierarchy is that it has too often bred authoritarianism, creating fear in some cases and dependence in others, and responsible autonomy was often seen as 'the loose cannon', so that 50 years ago, W Edward Deming was urging organisations to drive out fear (even as others counselled managers to use fear to extract the best from their staff). Even when a hierarchy is relatively benign it can, as argued by Deming, inhibit independent thinking by maintaining habitual relationships, allowing some to settle in comfort zones with few responsibilities.

> *In a strictly hierarchical organisation, the only learning that takes place is the learning of the individual at the top. Everyone else obeys orders. An organisation without learning will only survive in very stable conditions. In practice, of course, the lower ranks actually learn and adapt without being told to do so. But hierarchies tend to learn slowly, especially because a lot of effort goes into preserving the superior status of those at the top, inevitably an anti-learning activity.*

The incapacities of the three active ways of life (hierarchy, egalitarianism, and individualism) prompt them to reach out for cultural allies who can compensate for their weaknesses…It is this ambivalence (being both attracted to and repelled by rival ways of life) that generates the 'switching mechanisms', which continually forge, break apart and re-form alliances between the three. Thus triarchy can provide some sense of social fabric within which the Artificer can locate.

9 Enactment

Seeing theory through the lens of action rather than vice versa as is the norm, by being committed to doing the hard yards. For me the global problematique urges us to develop efficacious systems of action rather than thought or design. Generally speaking it takes up to 50 times as long to implement something as it does to think it up and 3 to6 times that think up time is required to design it.

The dominance of TAI$_1$ (Techno-Autotomic-Intellect) & the possible re-emergence of the TAI$_2$ (Techne-Artificer Intellect) – the Artilect

One form of intelligence nowhere adequately addressed in my view is that of the artificer. Here we have the potential for the artifice of human hands to itself be designed to have hands to artifice i.e. to have its own manual dexterity. Intelligence in this e-book is used in the sense of processing capability cp. knowledge which is used in the sense of knowledge about something. A little like fishing - your capability as a fisherperson is like intelligence cp. to knowledge of which types of fish are out there. One type of fishing capability may well suit catching more than one type of fish. Clearly the two are separate yet braid together.[40] This is the key when examining Artificial Intelligence and its relation to Artificer Intelligence or Technelogical Intelligence, i.e. the Artilect or the Technelect cp. for instance the Technilect.

Certainly the Cartesian dualities explored in the Great Transitions of Chapter 11 show the dimensions of what has been called the 'flatland of modernity' at once a strength and a logic jail.

From Grounded & brainless to Brainy & legless to Fleshless to Sexless to Off the Planet - Welcome Wonderful Modernity (WWM)

Modernity a term generally used to describe the condition of Western History since the close of the Middle Ages in the mid-1400s, which was initiated by the European development of industrialised text viz. moveable type and the printing press. Modernity in this chronological sense would have us believe that mankind, with his helpmates of technology and bureaucracy, is evolving into something special and consequently we need to be 'up with the times' and aver the archaic where we have come from/evolved out of.

This then is the path of science, almost all Western philosophies, most religions, economic and technological development (away from the local to the universal), and indeed ultimately the supposed path of evolution itself. In this modernity trajectory the noosphere consumes all before it and supposedly makes all after it in its own image and forms the basis of all our education systems, industrial systems, bureaucratic public administration systems and governance systems. Even pos- modernism and post-post-modernism remains firmly anchored exclusively in the noosphere - how far, epistemologically, we have come from the Neolithic. That is basically all our modernity based cognitive and consciousness development processes. As you can see from the following all of the current methods of determining intelligence remain essentially cognitive esp. I1, I2, and I3 - those conventionally tested for in IQ tests. Wildman (2002).

So that modernity's arrow of progress supposedly sweeps all before it. In this regard the eBook and its Artificer are scorned almost by all and sundry by the Education System (both

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[40] For instance types of knowledge or ways of knowing discussed in this book include: (K1) Techne; (K2) Scientia; (K3) Praxis; (K4) Gnosis; (K5) Relatio; (K6) Critics; (K7) Poetics; (K8) Poiesis. Clearly a particular type of intelligence may well relate to more than one 'way of knowing' and vice versa. For instance K7 relates primarily to I2 & I7; while K5 to I7; K7 to I4 & I9; I10& I11 to K8 and so on. In the case of Intelligences nor Knowledges are the taxonomies of this book exhaustive, correct or are they mutually exclusive. They are included here to illustrate the argument and provide a cross walk between the two in the interests of better understanding both.

higher ed. and Voc ed.), by the Bureaucratic System which runs Public Administration and Social Policy, by the esoteric system, by philosophy itself, by technology and not quite fully by science which at its empirical essence remains hands on. We need to know just who we are taking on - and it is the 'E'stablishment.

Ultimately though modernity even impacts our spiritual development, for instance from Wilber (see footnote 1 - on his Coral stage) to Karma (so to speak with its Oriental view of endless off the planet reincarnations until Nirvana is achieved from worm to wisdom) to many of the esoteric arcane Christos religions all end up with the highest aspiration as spiritual which means fleshless, sexless and thus off the planet.

If we respect the archaic and realise as many authors have argued that they were just as intelligent as us and that the consciousness, the wisdoms they had were as deep and meaningful to them as ours are to us we gain a profound respect for the indigenous and for the archaic. There is much to learn from the indigenous circumstance. Here we have an 'omni' approach to modernity an approach that respects modernity and what it has to offer but not at the rejection of the archaic and their esoteric and exoteric knowledges and beliefs that is horizontal and vertical knowledge such the term omnidernity. It is this sense we can rediscover ourselves without leaving home.

Artificer Learning has is own category intelligence – the Artilect

None of them relate directly to 'making or shaping useful stuff '. The categories/types essentially relate to thinking, speaking, moving, feeling, linking, 'musicing', arranging with even a dash of 'beyonding'. Respectively the types of intelligence indicated are: logical mathematical, linguistic, kinaesthetic, emotional, inter and intra personal, musical, spatial, spiritual and successful. These 11 types of intelligence are set out below.

Eleven Types of Intelligence …. and counting

Howard Gardner (1983) originally came up with:
    I-1 Logical Mathematical
    I-2 Linguistic
    I-3 Spatial
    I-4 Musical
    I-5 Bodily/kinaesthetic – ability to move ones body
    I-6 Interpersonal (see No. 9)
    I-7 Intrapersonal (see No. 8)
    He later came up with an eighth one:
    I-8 Naturalist – classificatory of natural systems (see No. 7)
Gardner then posits that Daniel Goleman identified:
    I-9 Emotional intelligence (see I-6 above and Ch 11 section on 'Women of the Hand')
Gardner then posits that Robert Sternberg added – and this one is also linked to Artificer Intelligence:
    I-10 Successful intelligence – more in the sense of efficacy
Clearly these intelligences esp. the ones noted above overlap, and may be conflated somewhat. **NB:** Conventional IQ really only includes the first two of Gardner's Logical Mathematical and Linguistic and perhaps spatial to some degree. Artificer intelligence or Artilect includes to a point 5 and 10 however neither adequately acknowledge the concept of artificer as building useful prototypes of socially useful artefacts.
Paul Wildman (2006) proposes:
      I-11. **Artificer Intelligence** – co-creative, mutual arising, transformative energy or social neg-entropy ability to conceive, design, implement, manipulate and fabricate artefacts useful for a improvement in the human condition. (see Ch 11 section on 'Women of the Hand').

TAI$_2$ a possible artificer learning style

The right hemisphere mode may be seen as the intuitive, subjective, relational, holistic, time-free mode, in effect the creative mode. Edwards (1993) argues that the emphasis of western culture and education is slanted strongly towards rewarding left-brain skills, and that right-brain skills – those of the dreamer, the artificer, the artist – are largely untaught and unlearned. According to Edwards, there are ways of increasing right brain activity and thereby enhancing creativity. Even though the links between creativity and physiological traits may be considered by some to be inconclusive, it is possible that Edwards' suggestions can be applied usefully to design of vocational education experience. In Edward's terms Artificer though technical (left brain) is essentially a right brain learning style and one that befits a creative vocation. Edwards (1993), (1995).

In this sense the artificer learning style may be seen to be Kinaesthetic [one of three the others being Visual and Auditory - in turn these tie in with Gardner's (1983) Multiple Intelligences].

My take is that even if we allow for an equi-distribution between these three learning styles, and there are other models, and match this with a pedagogical obsession for the cognitive nature of leaning then at an absolute minimum 1/3rd of students are disadvantaged in the conventional school system. I suspect strongly that the percent of folk who like at least ½ of their learning to be kinaesthetic is around 2/3rds of the overall population and even around 3/4ers of males.

A new type of intelligence even a new Form of Life - the Artilect

This article proposes an eleventh type of intelligence an artificer learning/phronesis type of intelligence which is about 'making or shaping good stuff', specifically that intelligence that enables a person to shape the actual embodiment of material, processes or structures that contribute to the betterment of individual and collective life. In short this intelligence directly and practically responds to the question 'how then should we live?' – **Artificer Intelligence**.

Ultimately such Artilect or Technelect could well be embedded in various Forms Of Life (FOL) see Wildman (1999), (2000). These forms of AAI - so called Artificer Artificial Intelligence - are where Techne becomes intelligent and ultimately conscious. This represents an alternative path in the tool development to the present one whereby the human and agentic elements are wherever possible all but eliminated from technology thus reducing the human to consumer.

Modern-day computer gaming esp. the interactive, networked X-Box type shows some of the main characteristics of the Artilect. Please see Chapter 13 for further discussion of this link.

Ancient manifestations of the Artilect

Some would argue that the struggle of the artilect is the outworking of the divine imperative given in Genesis in relation to the creation of humanity to 'subdue the world' and 'go out and multiply'

Extract from http://www.stanford.edu/group/SHR/4-2/text/mazlish.html
In this account, Müller seems as much magician as mechanician. The connection is not accidental, according to Francis Yates and others, who posit a 'Hermetic Tradition' in Renaissance science. Yates's argument, for example, is that 'the Renaissance magus was

the immediate ancestor of the seventeenth-century scientist.' In turn, the Renaissance magus 'had his roots in the Hermetic core of Renaissance Neo-Platonism.'[41]

It was especially Marsilio Ficino, along with Pico della Mirandola, who revived and carried forward the Hermetic tradition into the Renaissance. Ficino translated the collection of treatises that supposedly were written by Hermes Trismegistus, whom he believed to have been a real Egyptian priest and who gave an account, like Moses, of man and the cosmos. **In the Hermetic story of creation, however, man is given permission by the Father not only to dominate over the animals, but also to share in the <u>demiurgic</u> powers: that is, to create and animate artificial beings, as we would call them, or, in our terms, machines with Artificial Intelligence**. Thus, in the Hermetic Asclepius, as Yates informs us, 'The Egyptian priests...are presented as knowing how to capture the effluxes of the stars and through this magical knowledge to animate the statues of their gods.

Historically we can see the emergence of the **Artilect** through ancient automata. http://www.stanford.edu/group/SHR/4-2/text/mazlish.html Some examples automata in a selected group of examples: the 'Nightingale' of Hans Christian Andersen's Fairy Tales, the creature in Frankenstein by Mary Shelley, the 'Tiktok' of the Oz stories, the R.U.R. of Karel Capek, and assorted robots of Isaac Asimov. Even more spectacular were the automata of Pierre Jaquet-Droz, a Swiss, who 'in 1774...created a life-sized and lifelike figure of a boy seated at a desk, capable of writing up to forty letters.' (He still functions at the History Museum in Neuchâtel.) Droz created another figure called the 'Artist', in the shape of a boy that could draw up to four different sketches, improving on the average work of his human counterpart.

Current manifestations of the Artilect - Inspector Gadget

The Industrial Age and to today sees us obsessed with technological gadgets of all descriptions so much so that we wonder how we could survive without them, a little like Inspector Gadget in the Children's cartoon series now a movie the inspector (as to?) uses all types of gadgets to go about his crime fighting work. In today's gadget age we 'artifice ourselves' with PDA's, mobile phones, wrist watches, pace makers, smart credit cards and so forth. We have become our own inspector gadgets.

Future manifestations of the Artilect - The Singularity

Nowadays with the advent of emergent sentient technology Artificer Intelligence (AI1) is blending with Artificial Intelligence (AI2). Further humanity has essentially failed to harness AI1 to better its lot especially in the arenas of (1) Governance, (2) Poverty eradication, (3) Environmental sustainability, (4) **Kids & Adults Learning** innovations and (5) Positive Peace. One common process across all these arenas is, this e-book argues, the Artificer or Bush Mechanic. With the dominance of hard technology over social technology however, socio-technical systems improvements in the above 5 arenas have fallen far far behind hard technology. So much so that now it is claimed that hard technology is evolving at 1000000 times the rate of biological evolution and with social evolution going backwards this century then we are in a most serious predicament.

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[41] Francis A. Yates, 'The Hermetic Tradition in Renaissance Science,' *Art, Science, and History in the Renaissance*, ed. Charles S. Singleton (Baltimore: The Johns Hopkins UP, 1967) 258, 255. Furthermore Radu Florescu, *In Search of Frankenstein* (Boston: New York Graphics Society, 1929) 233. This is a marvelous work, well printed and illustrated, and, at the time I bought it, a wonderful buy. Compare the article by Michael Uhl, 'Living Dolls,' Geo (July 1985), and its quotation of one observer who delicately noted that Vaucanson's duck duplicated the process of digestion in full view of the spectators, 'ending the digestion process as naturally as it began'(86). Thus, long before Pavlov, the idea of a viewable pouch in the stomach was employed, not in a dog, but in an automaton. And in the seventeenth century, Sir Kenelm Digby, member of the Royal Society, had already declared that birds were machines, whose motions when feeding their young or building their nests were no different from the striking of the clock or the ringing of an alarm. See Keith Thomas, *Man and the Natural World* (New York: Pantheon, 1983) 35.

Here we see the link to the singularity when collective human intelligence on earth will be exceeded by computer intelligence for the first time. This is anticipated around mid this century. http://www.accelerationwatch.com/

Singularity: The rise of super intelligent life, created through the improvement of human tools by the acceleration of technological progress reaching the point of infinity the point of infinity. http://www.singularity.org/

Figure 6: The Singularity
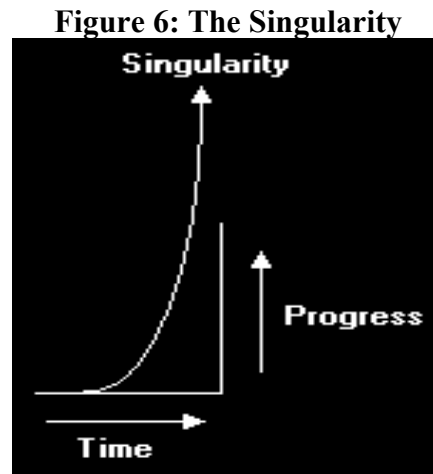
Source: above singularity web sites

Technologies Which Will Take Us to Singularity:
1 Computer software endowed with heuristic algorithms
2 Artificial entities generated by evolution within computer systems
3 Integration of the human nervous system and computer hardware
4 Blending of humans and computers with user interfaces
5 Dynamically organizing computer networks
6 Ongoing failure of improvements in human governance soft systems

In fact the split between thinking and doing will probably insist that 'to get things done' and 'to get humans out of harms way' AI in the sense of Artificial Intelligence.

Crucially the singularity can also have a catastrophic meaning (destruction of life on the globe in a single instant by for instance nuclear war, over a period via. germ warfare or environmental collapse, or esoteric through the emergence of a new or higher trans nation state planetary conscousness.

Sources:

As quoted above
Howard, Gardner. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. Basic Books

Howard Gardner 'Multiple Intelligences after Twenty Years.' Invited Address, American Educational Research Association, April, 2003 http://www.infed.org/thinkers/gardner.htm

Multiple Intelligences: A Theory for Everyone
http://www.education-world.com/a_curr/curr054.shtml
Howard Gardner's theory of multiple intelligences makes people think about 'IQ,' about being 'smart.' The theory is changing the way some teachers teach.

Appendix J - Designing the Bushy NGO - Exploring the structural tensions in NGO design with an eye to their redesign along Artificers lines

Identifying key emergent structural tensions underlying an emergent three year NGO lifecycle failure rate of 90%, personally experienced by in a diverse group of NGO's and their participants, in terms of the NGO's moving away from (1) their original espoused intent, (2) the task at hand (3) their present organisational structure in relation to (1) or (2), and (4) new members committed to achieving (1) or (2) through (3). A final section outlines some emergent key NGO redesign parameters

[NB: Note to the reader – this document was prepared for a separate project however it proved to be so appro pos that it is included here. Full scale redesign of NGO's is beyond the scope of this e-book and this appendix however the appendix to this appendix does outline some potential directions]

Introduction
Background - default hierarchy
Methodology

Structural Tensions
1. Strategic Planning cp. with Status Quo – default: 'don't strategise my status or I'll quo your planning to oblivion!'
2. Proact cp. with React as default: NGO's as reactive time capsuled frozen experiments:
3. Systems cp. Litany – default: 'you' must wait till after 'it' happens and the litany emerges, then 'we' can work out what to do
4. Open Governance cp. with Machine Politics – default adversarial 'us-them' machine politics/governance
5. Great Mission cp. with Bully Boy Operations- default: smile and look the other way while being the bully boy
6. My Door Is Always Open cp. with Personal Assassinations – default: keep the dirt file for covert assassinations
7. Love All cp. Shoot the Messenger – default: hostile to the messenger of change
8. The nature of Volunteerism and Volunteers in our Australian/Western culture
9. Separation cp. with Inclusiveness – default: where do we draw the membership line?

Broadcasting the Bushie – options to amplify the Bushie's work
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Introduction

This is the first in an intended series of three reports on redesigning the NGO[42] concept towards social change and justice and ethical operations. It is based on the footnoted [2] field based experience of myself and others over an extended period of praxis. Input and comments welcome at the above email address.

The other part of the background question for this Appendix is well ok then so what? That is what does one do about this in terms of ones involvement and the design of NGO's to help prevent this almost self structural sabotage.

Background

In my experience[43], and that of colleagues, third sector NGO organisations appear almost always[44] to flounder and become effectively moribund within a few years (a) of foundation

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[42] NGO – Non Government Organisation generally a non-government citizens associations, also commonly called NPO – Non Profit Organisation. Other terms are Volunteer Organisation and Citizen's Action Group (CAG) and Independent (Third Sector) Organisations (ITSO). An NGO/NPO is different to a QANGO – a Quasi Autonomous Non Government Organisation generally boards and the like established, and funded/resourced to varying degrees, by Government to run some particular aspect of the public provision of goods and services, NGO's on the other hand self-generate operational revenue. Specific NGO's are listed below others include intentional communities, environmental organisations such as WWF, Green peace, co-housing organisations, community credit unions. NGO's are at the heart of civic society and if they don't or cant work then nor can civic society. In 2000 the NGO workforce is about 10% (of which 9% are volunteers) of the entire Australian workforce (15% of the service industry), and contributed 5.2% of GDP, making the Australian NGO/NPO sector one of the largest in the world, [Inglis and Minihan (2002:2)] and increasing as Governments seek to privatise and corporatise and communitise many previously publicly provided services especially for the disabled, poor and homeless.

[43] **Grounding the above claims and comments:** In my immediate pre and post 55 Protirement I have deliberately selected to contribute to NGO's and in arenas I identified thorough my work as a futurist as key ones in areas with substantive emerging unanswered issues. These NGO's include – **in general:** Industry Peak Body, Welfare sector, Marine sector ((a) boat building, (b) political party, (c) recreational fishing), Politics, Futures, Intentional Communities, and a citizen action group. **In specifics:** (1) CQ (am) – Childcare Qld – peak body (2001-03 3yrs - myself and 2001 – current Annette); (2) Qualtime (am) – respite care (2001-03 -3 yrs); (3) VMR (am) – Voluntary Marine Rescue (2003-04 – 2 yrs); (4) TFP (am) - The Fishing Party (2004 – present – 3 yrs); (5) Sunfish (am) – recreational fisherpersons advocacy organisation (2004 – present – 3 yrs); (6) SCCQ (ca)– Small Craft Council of Queensland – 1yr – 2005; (7) WFSF (am) (World Futures Studies Federation) (2001-present – 6 yrs); (8) WFS (am) – World Future Society (2004 – present – 3 yrs); (9) Bundagen - Intentional Community (ca) – near Coffs Harbour Northern NSW as well as contributed to several other IC's in the general region (1996-7); (10) Volunteer Centre Qld (ca) – 2000-01; (11) NeWork Association (am) (2001-04); (12) CIVIDA – Civic Integrity Development Association (am) – 2001-03; (13) UNMP – United Nations Millennium Project (am) – Australian Node of which I was chair (2004-06). In most instances I have been an actual member (am) of the NGO and in some others I have been closely associated (ca) therewith. This shows an 85% failure rate 11/13 over a decade. Theoretical underpinnings of this analysis can be found in Wildman (1997) a course work course I develop while an academic at Southern Cross University in the mid 90's. Further more this evidential experience is very much supported by authors such as Inglis and Minihan (2002)

∑: *A dozen orgs over the past decade covering 25 collective years experience (two of these were on balance a positive experience – CIVIDA, and UNMP – in the latter we meet only occasionally and via the internet and the former functioned equitably though finished contentiously). As well as input from colleagues as Annette Cunado (community based child care organisations and migrant centres), Evan Hadkins, Carmen Burnett and Don Miller each with backgrounds of some 5 cumulative decades of experience in an additional 40 third sector organisations also inform this discussion. This spreads the project to some 50 NGO's in some 10 sectors over a cumulative 50 years and 5 people.*

The disturbing general consensus from research based on this group, from all the above experience and expertise, is that less than 2% of NGO's work – interviews 02 to 03-2006, and none are involved in NGO's (in other than a passive member basis) at present for this reason. Even if we allow for personality clashes,

or (b) a new member joins. They rapidly become irrelevant social cliques and increasingly toxic to (a) the task at hand (b) the original mission, (c) ineffective organisational structure and (d) those new and existing members, who in current terms, share the same concerns as the founders[45].

Crucial role of Accountability of the NGO's as key actors in civic society

NGO's are the key actors of civic society and we as a citizenry have a right to expect more. Forming 'the third way' after Government and private organisations they offer, conceptually at least the one bright spark in the horrendously unaccountable Government and corporate world.

TransNational Actors (TNA's) from across the intergovernmental, nongovernmental, and corporate sectors play absolutely crucial roles in our system of global governance. They provide essential services such as health care, set financial standards, deliver multilateral aid and respond to climate change. As such, they have a profound impact upon people's daily lives. But how accountable are these organisations to the people they affect? How do citizens hold them to account for their actions, and how do people make their voices heard in their decisions?

The Global Accountability Report seeks to answer these questions by assessing the capability of 30 of the world's most powerful Trans National Actors (TNA's) including Intergovernmental Organisations (IGOs), International Non-Governmental Organisations (INGOs), and Transnational Corporations (TNCs) to be accountable to civil society, affected communities, and the wider public.

To do this, the Report assesses the existence of four key accountability principles in organisational policies and management systems across four core dimensions of accountability; an assessment of the degree to which policies and systems support: (1) transparency and openness- public disclosure of information and enable the organisations to respond to information requests; (2) participation and inclusion, - both equitable control

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psychological misfit, and lack of suitable task or mission fit from the perspective of the incoming member this is not likely to reduce failures by more than 2 in 10 leaving a failure rate of between 50% and 60%. Yet in each of these cases above where the incoming member does not fit in the onus is to a significant extent on the NGO to address the matter, through induction, ongoing training and development, monitoring, mentoring etc. as incoming members have little agency other than exit.

Generally speaking the lessons learnt from these experiences are that (1) NGO's don't work and (2) NGO's see volunteers as doing the shitty logistical tasks never strategic work. Most NGO's end up a closed loop self-serving adversarial bureaucracies mimetically echoing the mainstream society, or well intentioned flaccid social cliques. Furthermore the approximate failure rates from overall failure stats are Type 1: the original espoused intent - 20%; Type:2 the task at hand - 40%; Type:3 their present organisational structure in relation to the their espoused intent/task at hand - 50%, and/or (4) new members committed to achieving (1) or (2) through (3) - 80% (double counting occurs in these stats as one NGO can fail in a number of dimensions – an amalgam of failure).

[44] The experience (cumulative 50 years and 50 NGO's with 5 people) drawn on for this article strongly suggests that upwards of 9 out of 10 NGO's manifest failure as described herein within the first three years of commencing operation or a new member joining. None of these NGO's were established for primarily social get-together goals.

[45] Generally speaking this cycle of destruction or enantiodromia (achieving the opposite of what one sets out to do) may be observed over a 3-5 year cycle either from inception or from a newcomers involvement – given the planning/budgeting cycle is annual after a few go's or cycles the penny begins to drop and the springs come loose. After 5 years from the collective experience of this book and those that contributed thereto that, 95% NGOs are either toxic or moribund in relation to their original espoused intent and or in relation to their ability to address the challenges of the time.

among members or shareholders in decision making, and the consistent engagement of external stakeholders in decision-making processes and activities and inclusion of those peripherally involved in the organisation; (3) evaluation and improvement- An assessment of the degree to which policies and systems support the evaluation of organisational strategies and operations, and the integration of learning into future planning (for TNCs, the focus is on evaluation of social and environmental impact), and kaizen i.e. continuous improvement with occasional kaikaku - structural change; (4) complaint and response mechanisms - provide a safe channel for staff, partners, affected communities, and the wider public to file complaints and receive a response in relation to issues of non-compliance with organisational commitments

Intriguingly five IGO's, four TNC's and, only two INGO's of the 30 TNA's examined scored over 50% in three of the four dimensions of each of the above four principles. Importantly though this evaluative process shows the importance of complaints and response systems almost completely ignored by smaller scale NGO's especially like those discussed in this Appendix. Furthermore the results indicate that NGO's even on the international stage perform poorly in these crucial areas - much as this Appendix found in its grounded experience/theory basis that it the generalisations I have made from my and others direct NGO experience.

[See: http://www.oneworldtrust.org/documents/OWT_GAR_07_Briefing_paper_4pp_colour_lo-res.pdf]

Intent of this Appendix

This reflexive Appencis seeks to ask:
1. Why 90% of NGO's fail (1) their mission, (2) the present task (3) through their structure or (4) new members in the first three to five years?
2. Can NGO's be designed to be different? And,
3. How can disaffected citizen ex-members be encouraged to re-engage and re-enrage?

Such failure is doubly disappointing as when one looks at the catastrophic collapse of this thing we call governance one may even say apocalypse therein, one naturally looks to the third sector for salvation and salvation there isn't.[46] Basically my point is that as citizens we have a right to expect a higher level of efficacious operation from our third sector NGO's and they have a duty of care to deliver. This e-book is a citizens attempt to outline key design tensions to be addressed in the formation of a new NGO.

Many social change agents find this particularly diabolically relevant and attenuating to social change as most social change folk say 'I can't do this on my own – so I will either join or form an NGO to do this or to protect or ensure this outcome does or does not happen to others in future.' I could study the phenomena however that does nothing to address it, 'how can I actually do something to redress the situation, nor does it help me understand what needs to be done or how it needs to be done only what is the situation?' This for me is the ethical impulse where we see social need or injustice and ask 'how can I work collectively to protect the value that this collective issue needs addressing?'

Most third sector NGO's continue to battle or stumble along compliantly on a day to day basis and in many regards would consider themselves as successful and thus disagree with the very premise of this article. And in many respects they are right however in accordance

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[46] As socio-governencal coherence disappears many people, even 80% or more, the search for coherence in our times through escape clauses such as the Da Vinci Code, the pap of conventional politics, others simply give up any search for collective coherence and seek individual escape through legal and illegal 'therapeutic consumption' as well as prescription and non-prescription drugs, resurgent fundamental religions, youth the most insightful cohort in society have seen the writing on the wall for a generation and tragically seek exit through suicide.

with the three criteria identified in the title they do not and in fact the author's experience and that of important others in this field is apposite. In fact the vast majority of NGO's fail and in fact they fail quickly both in terms of their original espoused intent and more importantly they fail incoming new members.

They however would not agree and they may well be right.

Default Hierarchy
Although supposedly set up in, and for, collaborative operations, all the NGO's in this sample had strong default hierarchy settings, so that the ubiquitousness and pervasiveness of bureaucracy could be no where to be seen except when it came to funding, complaint or strategic planning time - in short anything other than standard operations. Dick (1984), (2003), (2005).

Methodology

The methodology used in this short piece is simplified Grounded Theory. Field notes were kept only in the broadest sense of approximately identified emergent issues and refined over a period of one year as I gained further experience and discussed the matter with colleagues. The failure experience discussed here comes from my direct field experience thereof, and the following list of 'Structural Tensions' are presented in order of perceived importance as of 03-2006.

Structural Tensions

On reflection I see this decline from relevance as failure in design not personal or even collective intent, as NGO's are unable to identify or then resolve tension in design balance between the following 'opposites': [*TFP* – The Fishing Party – an emergent political party in Australia; *SF* – SunFish – a recreational fishing NGO in Queensland Australia; *QT* – *Qualtime* – a respite care facility for severely intellectually disabled youth; *WFSF* – World Futures Studies Federation; *SCU* – Southern Cross University].

1. Challenge: Strategic Planning cp. with Status Quo – default: 'don't strategise my status or I'll quo your planning to oblivion!'
The background 'state' of a community organisation is in practice, though not so espoused, is almost always one where the existing management and operational arrangements are sacrosanct notwithstanding any Government fiat to undertake planning for the future. Those present at foundation (and) usually the current beneficiaries of the organisation, consider themselves the true believes and 'proxy' owners, will ultimately countenance no change in operations although they may espouse commitment to strategic planning.

SP is repudiated in use but not in espoused press releases etc. as it ultimately will change the allocation of resources and thus the status quo.

Strategic Planning is about:
(1) Understanding, problematising and perspectivising the founders position *(TFP)*
(2) Understanding and engaging proactively with upcoming likely strategic changes in an organisations environment and
(3) Challenging status quo understandings and rationales that don't support (2), and
(4) Planning and implementing the reallocation of existing resources to address these changes and

(5) Putting in place learning, transparent, accountable, innovative and ethical systems to do same

$\sum$ - Ethics for (1), EIA system for (2), robust meeting layout and discursive training for challenge and growth for (3) and building SP into the structure, layout, responsiveness for (4), and then into management and operations for (5) *(SF)*.

2. Proact cp. with React or founder flounder – default: NGO's as time capsuled frozen founder experiments

Note SP is about coping with change only it is NOT designed to get in front of the change wave. For this one needs a technique such as 'exemplar projects'. So even proactive has severe limitations – NGO's never even get up to the proact block without blowing themselves up, let alone become genuinely 'future tense' proactive. Meme, Mindset and Machinations (palace and compliance) ensures this. Once only at foundation the founders generally did proact often out of a reactive desperation and displacement event, however this act of proact quickly becomes frozen into the operations of the NGO and the organisation quickly ceases to be able to even consider proaction, and ultimately acts against those that do.

NGO's rapidly (within 3 years) become time capsules in effect projecting into the future a heuristic/an analysis that may have been successful in the past without reference to changed requirements, or an analysis that starts from litany and moves into action without any deeper form of analysis. These provide living material for organisational archaeologists. The compounding crisis is that the Government now nominates and prescribes not only proscribes the articles of association for such organisations ensuring they remain adversarial, punitive and compliance focused. *(SF 2006, Qualtime 2001-3)*

3. Systems cp. Litany – default: 'you' must wait till after 'it' happens & the litany emerges, then 'we' can work out what to do - & once we have looked & acted we don't need to look again

The separation of thinking and doing in our society and education system leads to an impoverished, impotent and intellectually disenfranchised leadership and membership of many NGO's that focus on litany – essentially reactive to actually occurring events, rather than seeking to identify underlying systems and generative concepts. We see on our main forms of communication i.e. TV the obsession with one way communication punctuated by adverts all aimed at the litany level e.g. buy this TV or that car.

One of the identifiers of revolutionary movements is the symbiotic training in system thinking and doing often wrapped in ideological conversion, yet responding to immediate life situations. Oppression cannot be understood only at the litany level but insists on deeper understanding of the underlying systems that generate the litany, inc. social analysis. NGO's in Australia generally have no conceptual underpinning and focus uniquely on the litany level of events e.g. new laws, making submissions, lobbying.

Many NGO's are founded after a litany evidenced system failure e.g. justice, disability, premature death, health and so forth. That is the founders formational experience is retrospective and reactive to a particular event so how can this move to prospective and proactive. Basically in my experience and that of those interviewed for this paper this has proved an impossible ask within existing NGO structures.

So that to the extent that effective social action requires understanding underlying systems and causation then efficacious social action is not possible in a system that at root separates thinking and doing, so that social movements tend to work out from a certain analysis that

usually focuses at the litany level on events e.g. never again 'such and such' and event'. This is good for a start but not for a finish the system one is seeking to change must be understood and the method of intervention via. a series of actions must also be understood.

Such understanding requires a great knowledge of (1) causation; (2) systems analysis; (3) action theory; (4) philosophical perspectives; and (5) learning and development. **That is:**
(1) **Causation**: what is the cause of the 'problem you are seeking to address'? NB causation is *horizontal* – like billiard balls on a table and *vertical* like waves being shaped by a reef unseen underwater – starting with the litany the actual events as waves washing up on the shore then going to;
(2) What are **systems** that shape the waves i.e. the reef off shore. So what are the systems one is seeking to change and how do they inter-relate with other nearby systems – what is their strength and weaknesses?;
(3) What is the mind set, way of thinking, frame of reference or epistem that the waves sit on e.g. tides and shape of the continental shelf, finally;
(4) what is the whole picture – usually told as a picture story narrative script, pattern or myth we tell ourselves in order to hold these layers together and for them to make sense;
(5) What **series and sequence of actions** and, when, where, by whom, how often, with what resources and what intended and likely unintended effects will be successful?
(6) What **philosophical perspective** is being actioned here, the associated ethics, critique, alternative perspective and so forth? And I would add a seventh;
(7) What **learning's** will come from this and how will the message be picked up, understood and the word spread, and to whom – only the elite/management or to the troops as well and how will this develop a better set of understandings and actions for tomorrow for other citizens? *(SF 2—3-6, Qualtime 2001-3, TFP 2005-6)*

These understandings should be codified overtly in the organisations strategic plan. In any event they will be codified covertly i.e. without understanding.

4. Open Governance v's with Machine Politics – defaulting to the machine adversarial 'us-them' politics embedded in the 'de rigueur' official articles of association

Here the balance often shifts from one of mutuality and transparent discourse to the meme of the 'true believers' power elite viz. 'reactionary founders clique', innuendo, back room deals, proxies and voting blocks. Here the default operational mode is adversarial with numbers men behind the scene deciding the final vote. Ultimately this drove Latham from Industrial Machine Labour politics. Furthermore rules of engagement especially for the executive are often 'read as taken' from for instance the Government approved and required Articles of Association (constitution) and these are simply adversarial, majoritarian democracy with proxies. See also Appendix H for further discussion of Governance.

The meta-constitution as to board members their integrity and how they are expected to deal with each other, information, identify and priorities issues, set strategies, review performance (of themselves, the staff and the mission), one another etc simply are very seldom raised. So that when stress time comes the organisation reverts to form – and it isn't nice. *(Qualtime 2001-3, TFP 2004-6)*

5. Great Mission cp. with Bully Boy Bureaucratic Operations- as default

Egalitarian Transparency cp. with Positional Appropriation – in spite of espoused warm bath intent and claims and policies for equality, openness and transparency and communication etc. between management and workers for instance i.e. power-with, the

harsh reality is most NGO's operate with a 'power-over' or covert bully boy approach, especially to staff and strategy. Here the default hiding behind the smokescreen of welfare to humanity is almost always bureaucracy (hierarchy with regimentation) and the degree to which an organisation is bureaucratic is, I argue, the degree to which bully boy machine politics is alive and well. Further creation and innovation are thwarted with aplomb. A sub-set of this point is 'great start great splash now just let us tread water and wherever necessary the Government will throw us a lifebuoy' approach.*(Qualtime 2001-3, WFSF 2005, Sunfish 2003-6, TFP – The Fishing Party 2005-6).*

6. My Door Is Always Open cp. with Personal Assassinations – default: keep the dirt file for covert assassinations

Here notwithstanding the assurance by management that they are always listening, the individual raising issues is simply ignored, dismissed, patronised or 'dirt filed' (see 3), effectively eliminated from the consideration of the issues. So when push comes to shove the *dirt file* is produced. A file compiled through appropriating information by virtue of ones positional power in contradistinction to the above espoused values of the supposed things 'I can hold against you others have said' with no examination to the exclusion of positives'. *(SCU 1996-7)*

7. Love All cp. Shoot the Messenger – default: hostile to the messenger

The operating system and processes of a typical NGO association seems to produce and thus has embedded within its design – compliance based on adversarial politics – just as in politics. Politics is system optimising not system transformative so ultimately NGO's depend on a hostile environment e.g. crime, poverty and violence and seldom if ever seek to be transformative of themselves or that environment, consequently the treat the messengers of the need for transformation with hostility. *(Qualtime 1991-3)*

8. The nature of Volunteerism and Volunteers in our Australian/Western culture

Our culture has in general volunteers at best as 'grunt operatives' that is just mules to deliver mail or make lamingtons, not to be involved at board level in strategy. Further volunteerism is something that happens after retirement, so most folk in NGO's are retired volunteers. Most folk in NGO's are volunteers, so most folk in board positions in NGO's are volunteers i.e. 60+. Further in the Australian context most NGO's are substantially funded by the public sector so that NGO's generally are a form of state corporatism and are necessarily subservient to the surveillance of the Governmental super-structure, thus little creativity and few left field ideas, strategic plans or activities are tolerated. So most folk who work in the third sector in NGO's in Australia are (a) retired and (b) volunteers working for a board comprised likewise of retired volunteers within the NGO as (3) an agency of the State within a culture which sees volunteerism as (4) grunt labour. Australia does not have a long or deep tradition of philanthropy so that the State carries the dollar tag for much of the third sector NGO's.

Part of the background question that this Appendix series seeks to explore is the fact that most of the able minded and bodied folk I meet, including myself, who could contribute to social change and justice through NGO's are effectively sidelined and marginalised even to the point of withdrawing from any involvement with NGO's effectively simply giving up on the third sector. I wish this was not necessarily so.

Basically, as I see it, the situation is one of tensegrity - one of maintaining integrity in a state of tension as in the West culture reinforces the view that 'self-interest' pays off the

best. Add to this the fact that most NGO folk are, as indicated above retired volunteers and we see from the outset the difficulty of obtaining, maintaining and retaining [immediate]:

(1) Incentive- for you too volunteer or for the NGO to 'do its mission thing'

(2) Energy - commitment, prioritisation;

(3) (Cap)ability - ability to *undertake the 'task at hand'* inc. analysis/synthesis/enactment +integrity and relationship, as well as ability to move away from 'palace politics, vote rigging, proxy buying etc.**;**

(4) Consciousness/perspective - to be able to deeply understand, reflect and strategise on the external situation and these points esp. (3) and the structural tensions (listed in this section);

(5) Resources - pre-requisite, formative, ongoing and review resources or the ability to obtain;

(6) Vision - a broad and deep vision → mission that recognises individual and collective perspectives as well as inner and outer issues, and with a logic to get there as in Wilber's vision logic [Wilber (1995:184-186, 258-264)] a big ask; and

(7) Efficacy - the ability to follow through i.e. to be creative, innovate, self-correct carry the day re No's (3), (4), and ultimately *advance the cause/mission* [less immediate]. Clearly, in a complex or even complicated environment efficacy is incompatible with bureaucracy;

(8) Governance - open, transparent, accountable, genuinely democratic, deliberative, representative and integrity based. Clearly as with (7) good governance in a complicated or complex environment is incompatible with bureaucracy - see the Next Steps section following**;**

(9) Experience/Track record;

(10) Financial autonomy - at least 2/3rds of income not to come directly or indirectly from Government or Big Business - which can include in kind contributions but this criteria is in recognition of the old adage 'he who pays has the says'. These criteria can be applied (a) in for and with the volunteers and (b) in the NGO itself with its myriad of structures, board, policies, projects, infrastructure, articles of association, inertias and accountabilities to Government.

When one considers all the drawbacks it is truly amazing that so much gets done within the volunteers of the NGO third sector in Australia however with the right incentive, energy, ability and consciousness in both the volunteers and NGO's imagine how much more could be achieved!!

9. Separation cp. with Inclusiveness: where do we draw the NGO membership line?

Often community organisations in seeking to be relevant 'to all' are unable to establish satisfactory criteria for membership and so cannot deal effectively with 'freeloaders' or 'spoilers' or 'proxies'. This task is more difficult than it may seem because one certainly desires representation from 'consumers' i.e. those directly in receipt of the NGO's 'product or service' one also wants some form of representation those who produce the product i.e. the workers, as well as folk with simpatico with NGO Governance and Strategic Planning operations as well as broad community ownership/membership. This requires a superbly wise and dynamic balance towards efficacious outcomes. To what extent should membership be exclusively drawn from the target group or should others be permitted.

For instance these others may include community members, yet not too many, who may have broader interests and expertise, and in the instance say of a child care owners body 'others' may include those interested in child care who don't actually own a child care centre. And even worse workers who then form a vested interest to vote up salaries, reduce workloads, spread confidential board deliberations or go in a direction inimical to the aims and intent of the NGO. Such a tension is evident when one realises many of those 'interested' in being members will be consultants with little interest in matters from an owners perspective and more from an interest in cherry-picking money making projects for themselves, and who disappear as soon as the ripest cherries do (let alone be concerned for the tree producing the cherries in the first place).

In all events we need a polity that will incorporate a huge diversity of individual citizen preferences. Markets can do this to some extent, on the basis of the unit of exchange however one must 'own' or otherwise 'obtain' these units, however systems of mutual aid that go beyond the market are also needed, systems such as associationalism and mutual aid for instance based on the NGO.

10. Governance: Self-Interest becomes Vested-interests rather than Collective-interest in Mission commitment

Its not what it is - its not even why it is what it is - it's how we decide why it is what it is. (Paul Wildman - personal saying 2006), and it is in this latter sense that concepts such as communicative action, process management and sociocracy come into importance.

Today in mainstream society we see individuals and groups seeking self-interested advantage over another. Few individuals or groups have been able to develop the ability to articulate to the global problematique as it were i.e. the overall mission of the overall organisation. The articles of association tend to 'aggregate this ignorance', of the big picture that is, and so the association or individual operates from their own perspective (not the communities or organisation's let alone Gaia's) for their own benefit/need (usually as individuals who when they combine do so as a 'vested interest' rather than 'concerned citizens' using for instance the NGO to meet that need, by appropriating its governance structure through block voting based on their vested interest).

So in overview it may be said that the present Articles of Association are not particularly good at generating a governance system in NGO's that can move from self interest to self interests to collective interests to collective interest so to speak. That is from the individual through vested interests, palace and power politics to a genuine collective interest based on the NGO's mission/intent.

[Kohlberg Stage 2 Pre-Conventional Ethics - Palace Politics - see Bush Mechanic Principle - BMP 1.1 refers]

Grounding & amplifying the Bushie – options to broadcast the Artificers work

In my research for this e-book I have found Bushies are generally solitary creatures working alone in their shed or in relative isolation with a small similarly interested group not seeking the limelight or even often not bothering to publish the results of their work.

Through a Bushy fair or festival or Hall of Fame

Certainly in some countries such as the US with the Oskosh Air Show and so forth the bushie or 'home builder' as they are called there are seen from the very depths of Government as critical to industry innovation.

Through the Internet - the Artificer Exemplar Project clearing house

Here we see a possibility for a web based clearing house of actual exemplar projects. Say a page on each cross referenced by type of project and listed after being evaluated against the 4 key Bush Mechanic principles.

Through a Bush Mechanic type Media Programs

If one seeks to respond to the challenge of *'how does one set up structures to broadcast or amplify a Bush Mechanics activities?'* – citizen bushie if you will – NGO's are an important response. There are other methods such as: (1) the Bush Mechanic TV series from the ABC; (2) bushie type inventors/social innovators show, similar to the ABC New Inventors show; (3) an Artificers series showing key artificers around the country a little like 'An Australian Story'; (4) competitions/TV programs such as *Escape from Experiment*

Island or *Junkyard Wars* where, in both instances, teams of 5-7 folk compete using available materials + their ingenuity to conceptualise an idea, design, build and test it against a second team; (5) publish lists of Bush Mechanic exemplar projects on the web or in hard copy [Albery (1992)], in a clearing house format.

Through Intermediary Organisations

Intermediary Organisations (IO): China is seeking to use intermediary organisations to assist start ups. Such intermediary organisations could also assist broader forms of social innovation inc. finance, basic assessment, mentoring, networking, LLL (Life Long Learning), even a Artificer/Bush Mechanic Learning IO etc. China is well versed in the potential, and risk, of intermediary organisations (vertical interface) and technical brokers (horizontal interface). Clearly enterprise facilitation and institutional innovation are insufficient on their own to generate economic development what is required argues Jin (2005:252) is enterprises AND entrepreneurs – a sort of capitalist version of the Artificer. Australia has had only limited experience in such intermediary organisations and then primarily at the policy rather than implementation and performance stages. NAGLEI (1987:a, b, c).

Through the Corporate Bush Mechanic/Artificer - possibility or absurdity?

Using a corporate as an organisational shell for Artificing offers great possibilities. The corporation is a well known organisational structure and has within it a virtual free trade and mutual aid zone. Some corporations even have innovation zones/sections/processes as well.

The options for this concept are fivefold:
Generation 0 Corporate Artificer
(1) Conventional 'for-profit' organisation

Generation 1 Corporate Artificer
(1) **An entrepreneur Artificer establishing a corporation** - Artificer exemplar project content organisation,

Generation 2 Corporate Artificer
(2) A corporation that operates as an 'organisational Artificer' e.g. in its governance processes - **Artificer process organisation,**

Generation 3 Corporate Artificer
(3) A corporation that operates conventionally while maintaining a subset Artificer program as a form of corporate/staff innovation/corporate learning process - organisational artifice through **artificer skunk- works approach**,
(4) An organisational that **uses a Artificer approach** in relation to corporate development 'organisational bricoleur' and/or strategy deployment i.e. in enacting the strategic plan. **'Strategy Deployment'** also called 'organisational techne' [Coutu (2002)] or 'hoshin kanri' in Japanese [Womack and Jones (1996)],
(5) An organisation that acts in its environment as a artificer undertaking demonstration self-help type 'exemplar projects' - **the artificer organisation**

Generation 4 Corporate Artificer
(6) An **Intermediary Organisation** as outlined in the previous section - here the I/O would sponsor/facilitate assist Artificers develop their prototype and where relevant benefit from its commercialisation (within Australia). These aren't necessarily mutually exclusive however the disappointment with the first is that the organisation thus started generally

doesn't turn in to the second and rather is run as a conventional corporation even bureaucracy.

In a sense to operate successfully such an organisation would need to be able to survive largely apart from its Artificer projects. This would mean operating as a sort of skunk works within an existing successful organisation like Lockheed did with its aircraft manufacturing or commercialising some of its exemplars. The latter is almost invariably the default way people go when they see a functioning exemplar project however the Artificer has about as much interest in seeing an exemplar commercialised as she does in watching grass grow. So some synthesis is needed. For instance in concept three above an existing corporation a Artificer scheme can be introduced as an organisational innovation program within a conventionally operating organisation. Wildman (2005a).

The Corporate Raider - The grim reaper as entropic artificer

In capitalism as Schumpeter argues an ongoing 'creative' process of generation and destruction occurs. And any act of creativity has two dimensions a synthesis one and an dis-amalgamation. Skunk works are an example of the former and corporate raiders an example of the latter. So that successful firms are taken over (and often asset stripped) by larger firms seeking to dine on any economic neg entropy they can find. These corporate raiders are often established simply for this purpose and often funded by superannuation for instance. Called international corporate raiders these elite firms are massively debt leveraged and prey on substantial asset rich local corporates earning a sustained 20%pa+. The corporates then substitute their debt for the assets of the smaller local company which is then either closed, moved offshore or on sold as a shell, while the corporate raider leverages more debt from the assets of the recently acquired corporation.

The nature of the corporate Artificer organisation makes this type of a takeover highly unlikely. Nevertheless such takeovers are part and parcel of the corporate 'game' and in a sense makes the upper upper levels of the corporate world highly unstable with such endemic debt driven asset stripping generating substantial cyclical volatility leading to depressions recessions and the like as a semi-regular cycle. Today around 3/4ers of the major economic players on planet earth are corporations not nation states. This reinforces the need for a resilient local economy to be able to sustain itself in the face of such national and international volatility sub-corporate structure. This e-book argues that such a resilient local economy could well include a mezzanine Artificer type organisation and process. [as well as public fiat being exercised in the direction of superannuation monies to support such mezzanine artificer corporations].

Through the Artifice NGO

While having some similarities with the Corporate Bushy the Artifice NGO uses the terms and articles of association of not for profit company. Generally speaking charities can't make the transition to Artifice. Furthermore NGOs although in promise offering more inc. the promise of direct, and political actions, seldom have any serious sort of governance or innovation structures in place and generally are bureaucracies by another name involved in delivering fixed human services. They are in effect agencies of the State, however although they represent at present 'a bridge too far' they do offer the better long run option for social change as they are not driven by the central tenet of profit before all else. Further discussion of designing an efficacious NGO follows.

Through Local Theory

Authors such as Turnbull (2003:8-9), Goody (1977:48-49) argue that Exemplars are in effect a theoretical entity constituting a world view. This is an alternative reading of Kuhn's work on scientific paradigms whereby a paradigm can be one of several distinct

meanings: (a) a belief matrix - metaphysical (b) a disciplinary matrix or (c) an exemplar which serves to turn puzzles (ideational) into problems (capable of solution in reality). Both authors maintain that although Kuhn (1970) placed substantial emphasis on (c), it was (b) that carried the day and has become what we think of when we think of paradigm, whereas to Kuhn paradigms mean also 'exemplars which distillate puzzles into problems capable of solution through scientific inquiry'. So in this Kuhnian sense exemplar projects may be seen as nothing less than representational of scientific paradigmss.

Exemplar allows us to see scientific knowledge as a gaggle of politically competing local knowledges. So that theorising becomes an assemblage of heterogeneous, local practices and knowledges, necessarily verifiable across most, but not necessarily all, sites. Indeed Turnbull (2003:12) argues that science has recently shown a shift in epistem from the representational (abstract theory building - paradigm as disciplinary matrix) to the performative (demonstrative, concretised local knowledges - paradigm as exemplar). It is the contention of this e-book that the exemplar project in the Artificer sense is 'P'erformative.

The Artificer as Trans-modern Knowledge Space

An argument can be made that the Artificer represents a sub-altern voice, what Foucault (1980:71ff) calls the 'insurrection of subjugated knowledges', within the voices that form science in the performative paradigm. In this sense the Artificer can to an extent be considered somewhat similar to indigenous or what Levi-Strauss (1996) calls wild science. And as such occupies a discrete knowledge space and forms with indigenous knowledges that legitimate gaggle of competing local knowledges that have to a large extent been either absorbed, or more likely destroyed, by mainstream science.

The term trans-modern is used here in the sense that the artificer knowledge space goes beyond the abstract theoretical critical to the performative concrete local as such it transcends modernity and post-modernity.

Steps in facilitating the Artificer to move from Local to General theory are given in Auxiliary Articles section BMARP Aux 3. Wildman (2005e).

Through Reconstruction of Quality Assurance procedures

Urgent reconstruction to be undertaken as present QA processes simply generate huge amounts of paper work and then only assures/quantifies the production process and not the quality, fitness for use or service levels of the finished product. Time and time again an artificer finds poor or non-existent service, product knowledge, stock, even poorly fitting products and so forth. QA is seen as a statistically based variation control process that eliminates say divergent bolt lengths and enforces conformity. This may well be good for bolts however for anything more mereological, nested, interfaced etc. fitness in use as well as product support and knowledge as well as follow up service is also crucial.

In terms of Quality Assurance and Official Standards, Ingold (2000:378) agues that it *'is nevertheless true of any process of development and innovation that it must involve an organism in relationships that cross-cut the boundaries of conventional taxonomic groupings'*. Clearly innovation has to cut across conventional concepts of standards and Quality Assurance.

Through Enablement Standards rather than Output Standards which are just another way of saying no

In a similar vein to QA standards seek to enshrine or freeze frame so called 'best practice' at a given point in time, by specifying the outputs cp. the outcomes, for instance, of

construction activities e.g. a boat or house. Further these outcomes and Standards are enforceable with punitive not facilitative or enabling sanctions abounding. So for instance as far as the marine, building or child care industries are concerned innovatory hulls or building formats or child care centres are outside these standards and so are illegal. The combinations of QA and Standards (Australian) have had the effect of literally squeezing any innovation out of the marine and housing industries. Innovations are imported, and techne left to dry up. Artificing that is building innovative exemplar projects almost always move beyond standards and so cant 'legally' exist.

For instance his can be seen in the Australian Boat Builders Plate wherein calculations for 'allowable' power plants are based on conventional mono (displacement and planning) and catamaran hulls. Basic figures are assessed for a planning hull and no allowance for power or carrying capacity is allowed for instance by virtue of say tri hulls etc. thereby innovation is simply quashed before it gets anywhere as alternative and innovative hull or building shapes are all but impossible to develop. Yes the larger corporates players can or can import ones from China but the small Artificer type approach is simply chocked at birth.

Standards are sold to the public on the basis of 'safety' yet they are set by bureaucrats in administrative silos with no knowledge or interest in the topic under regulation and we end up hundreds of inconsistent, even absurd regulations that simply say STOP. And it works gradually society is being dumbed down, gradually we are loosing our right for civic and citizen innovation.

Even more tragically we see this absurdity in so called 'green regulation' for sustainability so that it is possible now to have a 'green house' or even 'green shopping centre - called big tops' this is simply absurd when governance and market systems stay the same the structure is more sustainable yet the system or process in which it locates are not. In turn this is a critical Achilles heel of sustainability.

In summary

In regard to the above discussion the Corporate Bushy option is assessed as having the greatest leverage possibility for extending the reach and relevance of the Artificer. In relation to the task ahead the greatest challenge is to link the artificer concept to the design of corporations. This is largely beyond the scope of this work. The remit of this e-book has been to adopt a Artificer -a posteriori - from the ground up - approach so the vast majority of time, effort, expense, research work and experiential learning has been directed at examining 'the concrete real live bushy - in action.   The next phase would be to work towards shaping policies and programs to undertake one of the five above options for the corporate Artificer.

A sense of urgency in this regard can be seen from the urgent need to change collectively, collective systems, processes and structures, in particular from punitive to enabling and outcome oriented ones. In this regard isolated Artificers would not be of much use before 'the collapse' certainly afterward. By incorporating the Artificer principles into corporate design however, one can establish, leverage and amplify the immediate collective relevance of the praxis concept and that of the individual bushy.

The Next Steps – designing the next generation NGO

Strategically

This article maintains that the cause of the failures in NGO's we see all around us every day are largely foundational. Thus TNS needs to be foundational i.e. that methods to address these tensions need to be incorporated into the articles of association of the

proposed NGO, the method of selection and training of its members, their commitment to the NGO and its operations and VV, and the boards determination to ensure participation and efficacious probity in relation to the NGO's original intent as lensed through today's world.

Operationally - Good Governance is The key

1. **Extensive NGO Goals** - NGO Articles Of Association (AOA) to reflect the global problematique facing the association, priorities for action – priaction - that come from this problematique analysis, and key response heuristic thereto that is to be targeted/addressed by the association, inc. outcome accountability. These could well take the role of Currently Assembling Policy Thought Pieces for instance on the web that can then be distilled into formal NGO policy leading to modifications to, and or introduction of new operational activities

2. **Intensive NGO Goals** - AOA to include Rules Of Engagement (ROE) that determine how board members interact in relation to Association business, peer accountability, methods of decision making, dispute resolution

3. **Board Meetings** be established on the basis of open discourse about same and that incoming Board members undergo an integrity development process to equip them for elegant participation in the deliberations of the Board.

4. **Board Membership** to be statistically representative of the endeavour at hand and in particular draw from those directly impacted by the operation of the project.

5. **Board membership** not necessarily to be by election, lot or rotation (3year) may well prove superior. Critically board membership must be statistically representative of the group served e.g. a hospice would have family, residents (split into sub groups eg women, men, ethnic etc), community. Staff membership of the board however, although good in intention, is extremely problematic in extension i.e. as experience indicates staff have the most difficulty in taking off their staff hat, furthermore confidential discussions about future, restructuring, performance quickly make it back to the troops and all hell breaks loose or worse and believe me it can easily be worse. Possibly just possibly the CEO can be a board member.

6. **Board conceptualisation of role** – the concept of board of management or management committee is most problematic as the board is conceptualised as part and parcel of day to day operations – basically a recipe for failure. Where as a board conceptualised as a board of directors (executive role), although sounding elitist, can allow the concept that the board appoints or contracts a group to carry out certain activities. This allows a commercial in confidence performance management type distance to be maintained for effective executive governance to occur.

7. **Board Meetings** to have two equally important foci compliance and operations (where adversarial voting may be accepted) and strategic deliberation possibly necessitating two types of meetings (where adversarial voting is an anthema the idea is for a meeting of minds – not one mind or a group mind – the meeting of minds onto establishing common ground

8. **Board Operational Rules** to include: proxies not to be used; only those present can vote, only existing policy and procedures to be followed, all decisions to be disseminated and debatable

9. **Board Operational Processes** to aim at conflict pre-emption include consent building processes to be invoked in times of disagreement, paramount objection, strategic realignment, ethical challenge while balancing this with today's inordinate operational compliance requirements

10. **Board Long term Outreach aims** processes such as exemplar projects where concept and enactment conjoin

11. **Board Operations** need to include a Process Monitor and Action Based Learning Cycle (ABLC) circle – so inbuilt systems for the group to self educate one another in group process are crucial

12. **A vision has more grunt than a problem or anger** – *V Grunt* - in the long term maintenance of an NGO – the problems come when (1) the vision is received doctrine from the founder, (2) it becomes set in stone and new members cant change/contribute to it, (3) vision protection or *V certitude , V probity or V authenticity* does require *V husbanding* in the sense of protection till it can become what its potential is becoming

13. **Strategic deliberation, even (V)ision logic –** *V logic***,** is also crucial to LT survivability and thus includes *V priactivity, Meta-constitutional V, V problematique and V adaptability*

14. **Intergenerational issues are a good focus start** eg what sort of world do you want to see for your grandchildren

15. **Anticipate Failure –** monitor for it – write about it – discuss it – match it with successes - allow for regular restructuring of the operations of the organisation say ever 3-6mths. Unless substantially different operating processes are introduced allow the NGO to fail and resurrect every three years.

16. **Government induced lethargy -** Clearly the extent to which one considers the structure of the standard Articles Of Association (AOA) used by NGO's is an important causative factor in the failures documented above is the extent to which one gets a glimpse of how Government's well meaning efforts[47] to prescribe common NGO structure in only approving one AOA proscribe**s** innovation and precludes non-adversarial alternatives, such as demarchy [Burnheim (1985)] or sociocracy. Furthermore provision for external 'expert experience input' and 'broad (not necessarily board) membership participation on committees need
to be provided for.

17. **The top down concept of 'one right path'** which is 'prescribed by Government' has eliminated alternatives, innovation and adaptation to emerging markets/circumstances. Addressing this inbuilt weakness is a challenge and means that informal and extra curricula processes must be introduced that through 'good will' by all board members overarches the legal AOA. This is a constant struggle.

18. **Face the NGO fate –** i.e. if the majority of $ are provided by Govt then, no matter what the Govt blurb says or the organisation wishes to claim, it is not a community based organisation it is a QANGO and thus the agenda and compliance and accountabilities are already fulsomely set by the 'owner' Government.

NGO basic checklist: A ready-reckoner applying the 'D'esign heuristic to assessing the 'Bushyness' of an NGO so as to determine whether it is worth your effort of being involved

As can be seen from this section there are a many criteria (30+) for assessing the efficacy of an NGO your intending to join or wish to reassess your involvement with, the following Table however, lists only the ten key basic criteria that contain within them all the above criteria.

These lists apply to the people and the structure and seek to identify the extent of 'capable efficacy' i.e. bushyness inherent in an NGO. Remember you are rating the NGO's in relation to your assessment not to their assessment. Experience suggests that the application of this matrix would indicate that at least 95% of NGO's aren't worth the effort of volunteering and that ones subsequent volunteer effort will be a waste of time. These criteria are derived from the Structural Tensions listed above and esp. Structural Tension 8. **NB**: this does not mean one does not volunteer it just means one is aware before hand of the likelihood of frustration and the areas from which this will arise.

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[47] For instance each State of Australia has generally standard prerequisite AOA which, are adversarial, allow for proxies, and based on majoritarian democracy, do not distinguish between strategic and operational matters, have no learning cycle or induction program for new board members, and construct the board as management not executive. Every registered NGO MUST subscribe to this standard AOA. This prescribed structure just leaves holes for the agency of those with ill intent to come through while the majority of the board is busy doing its duty (so to speak). In this book I estimate in a naive way that approx 2/3rds of the failures of NGO's are structural primarily due to the inadequacies in the AOA.

Applying the PIDIL process to NGO's

These considerations enter the PIDIL 'D'esign process at the 'd' stage i.e stage three. Presumably one has moved through the Problematique and Idea Stages by the time one gets to apply this check list. [see BMP1 in Chapter 7 for further explication of the PIDIL process] In **Problematique** you assess if the NGO has a valid grip on the 'problem' they are ostensibly seeking to address and you assess if your priorities and theirs match, and with the idea you assess if the **Idea** they have to address this problem and you will ultimately find concretised in the structure of the NGO that you will then apply the 10 checks to see if they have **Design**'ed the response to address the idea appropriately which your volunteering will then be allocated to the **Implementation** of this design, the outcomes of which you and presumably the NGO will then be able to **Learn** from, so as to do it better next time round. The 'D'esign process is outlined in the following Table.

Table 23: NGO basic checklist - applying the PIDIL 'D'esign heuristic to assess wether the NGO is worth your involvement?

	Criteria (score 1 no-10 yes) ↓ / NGO's →	SF	WH	BTC	TFP	QT		EI (%)
	Problematique	What is 'T'he issue/problem the NGO is seeking to address?						1 (1%)
	Idea	What is the action idea they have to do this?						3 (3%)
	Design							3 (3%)
	Level 1- immediate							
1.	Incentive	7	6	6	7	7		
2.	Energy	9	6	6	7	7		
3.	Ability	3	7	5	7	4		
4.	Perspective/understanding	3	6	7	3	3		
5.	Resources	6	7	3	6	8		
	Level II - less immediate							
6.	Vision logic	2	6	7	3	3		
7.	Efficacy	3	5	4	6	5		
8.	Governance	3	6	6	3	4		
9.	Experience	10	8	3	3	8		
10	Financial Autonomy	3	4	3	9	2		
	∑	43	61	50	54	52		
	Implementation	Your actual volunteer efforts						100 (90%)
	Learning	Learning with your host NGO from these efforts						003 (3%)
		08-2006	10-2006	10-2006	08-2006	03-2005		110 (100%

Source: P Wildman 10-2006.
Interpretative notes to Table:
[A] Scoring: a score of: (1) at least 80 out of 100 is required before one can consider a possibly volunteering stint as worth ones while; (2) 60-79 suggest it may be worth putting the NGO on a three month probation; (3) less than 59 suggest strongly volunteering will be a waste of your time. Why 80? Well you have probably head of the 80 |20 Rule i.e. 80% of the results come from 20% of the effort so… in this instance I considered 80% of the results was about all one could ask for yet one was entitled to ask for.
[B] Results may well change say every few months so take the temperature now and again in a few months compare differences in scores and learn about how the changes in the organisation and yourself have affected your 'fit' with the NGO. Of course one may need to volunteer for say 2-3mths to gain insights into the operations of the NGO sufficient to apply these criteria or alternatively one may approach present and past members or make an assessment from published material eg presented at AGM's.
[C] Applying these criteria can be applied (a) to your broad experience of an NGO as a whole (2) by an NGO in relation to its own operations - self assessment of its attractiveness to volunteers - and (3) potential new members inc. yourself.
[D] EI - Effort Index - can be in hours, months etc or dollars for some other indicator of effort. NB the fact that say P has an EI of 1 does not mean it is any less important than I with an EI of 100. Rather it just that implementation (I) takes a huge amount of resources about 100 times and 30 times the resources of cp. P or I respectively.
[E] Applying PIDIL - This means, for instance that for every hour you/the NGO spends on looking at the situation and working out what needs to be done i.e. how to respond to the problem, prioritising the

problematique, you/the NGO will need to spend say at least 3hrs on shaping the idea of exactly what to do, another 3 hrs on the design of this response & around 100 hours on project implementation with another 3hrs for learning. This is the PIDIL heuristic. Oftentimes the NGO gets lost in the second I - Implementation & as such become a time capsuled frozen founder experiments - See Tension No. 2 above

[F] NGO's discussed in the above text: QT- Qualtime – a disabled respite care hospice I undertook Board of Management pro bono work for 2 years; SF – Sunfish the recreational fisherpersons association; SCU – Southern Cross University; BTC - Be The Change - social innovation movement; TFP - The Fishing Party; WF - Wavell Heights Uniting Church

Responding to the score

One clear way of responding to a score of around 50 or so (most 'good' Australian NGO's will never get beyond this) is, if you still choose to go ahead with your involvement, to limit or layer your involvement with the NGO. For instance I know several folk inc. myself who will only outride an NGO and never get in close. Once these types of requests come in we leave. This may sound cruel however it allows the NGO to benefit from your volunteering and it allows you to contribute to society to 'give something back'. A score of 60+ in Australia is almost compelling but hang on don't loose focus you matter and as the NGO's customer you are doing them the favour of volunteering not the other way round.

Other layers include starting your own NGO, contributing to specific pre agreed NGO projects, and sniping away at the major issues. It has taken me 3 years to get one NGO to agree to look at its strategic plan - which it did in 1996 a decade ago!!!! The trick is not to invest too much emotional capital in your social venture of volunteering. You will basically always be disappointed. Even worse expecting the NGO to change is an even bigger ask. It is just beyond the mentality of most folk in NGO's as explained above and the true believers are additionally simply too busy keeping the boat afloat with compliance and complaints and members concerns to look ahead.

On the other hand an NGO looking at a score of around 50 or so for itself, as an averaged of anonymous ratings by its members, if it has genuine commitment to, and understanding of, its mission and respect for the volunteers it will seek to lift its act immediately. One way of doing this is by seeking assistance of its members to strengthen is strengths and mitigate its weaknesses. My experience suggests this, change of hear, is extremely rare and frankly not to be expected.

Don't forget there are three ways the criteria can be applied (1) by you to assess your prospective involvement in an NGO; (2) by the NGO to assess its integrity in relation to obtaining, maintaining, and retaining volunteers and; (3) by yourself on yourself in your day to day life.

NGO References

Albery, N., ed. (1992). *The Book of Visions - An Encyclopaedia of Social Innovations*. London. 340.

Burnheim, J. (1985). *Is Democracy Possible? An alternative to electoral politics*. Los Angeles: University of California Press. 200 pgs

Inglis, L. and S. Minahan. (2002). *The Failure of Strategic Planning Processes in Australian Non Profit, Voluntary Organisations*. Monash University - Faculty of Business and Economics: Melbourne.

Wildman, P. (1997). *Policies in Organisations*. Lismore, Australia: Southern Cross University Press.

My Artifice Me: the artifice of Self - the Artificer as Psychonaut

Some interesting and some perennial questions about consciousness research that were asked in the early days of psychology before behaviourism gained it's stranglehold on most of psychology related to the balance between experiential and analytical psychology. For instance the Wundt's (1904) Introspectionists, William James's (1902) search for the meaning of inner transcendental experience and immortality, a little later, Piaget's (1955), (1967), (1983) less well known work in the Ontology and Epistemology of Intelligence and finally Heinz Werner's (1978) Organismic Development Psychology, which paralleled to a great extent the early development and insights of General Systems Philosophy, and was even recognized by Bertalanffy (1968a,b), (1975) himself when he gave the inaugural address at the Heinz Werner Institute at Clark University. These schools along with Phenomenology and Gestalt all predate Behaviourism and point to a very different understanding of experience than stimulus → response behaviourism suggests.

Intriguingly many of the experimental tools of consciousness research are experiential not analytical, for instance when we talks about giving ourselves to our inner experience as opposed to reading about it. Francesco Varela (1987) (a Buddhist of many years) makes almost the identical point in an essay he authored for Watzlawick's Book 'The Invented Reality', where *he concludes that language no matter how well penned or high intentioned can only get in the way of insight and learning in the internal sciences of consciousness, and that the only meaningful learning strategy is action.* Indeed he 'resolves' the thinking doing duality by defining cognition as 'embodied action' through the 'structural coupling' of person and environment. Watzlawick (1984) maintains that human communication involves both *digital and analogue modalities*, and furthermore communication does not involve the merely spoken words (digital communication), but non-verbal and analogue-verbal communication as well.

Oscar Ichazo's (1993) work embodied these two points perfectly. He claims his arica trainings were more than 90 percent analogue i.e. non cognitive/nonverbal. And while the trainings consisted of learning and practicing many varieties of consciousness technologies from an almost equally varied number of cultures, the point was to pick and choose the mix that worked for you. Furthermore most 'personal development' workshops are experiential.

Although *well beyond the scope of this author and thus this e-book* the issue of the 'mental mode' best suited for introspection and consciousness explorations does I believe beg the experiential | analytical balance, the analogue | digital balance. In the long run it may be that the greatest artifice we have a role in shaping is ourselves, and in cycle this e-book argues that our artifices in the external physiospheric world help shape self - retroductively. Here we have Wilber's (1995) quadrants: inner artifice or Psychonaut (cp. a psychological astro-naut) a counterpart of the outer artifice Wildman (2002c) while the exemplar project itself although also having a social reality is in effect as argued by this e-book, an cultural artefact - the exemplar project as integral vision artifice logic (for starters).

[**Authors note:** The above is not strictly speaking 'artificing proper' in the sense of this e-book, in particular in relation to two of the four principles especially Principle 1: Exemplar project in the physiosphere and to an extent Principle 3: Global Problematique. Overall however the principles are substantially (2/3rds) met by the above Artificer as Psychonaut so to speak]

Appendix K - A short history of Western ethno-philosophical thinking related to the Artificer concept from 8000BCE to the present

Introduction

Physics provides on one hand the epitome of efficacy of the Descartesian separation of theory and practice primarily due to the phenomenal technological spin-offs in the 20th and 21st centuries. Wertheim (1997:xiv). This appendix seeks to extend in depth and breadth the interaction between mind and matter over the two and a half millennia that have produced this Western cornucopia.

Socrates advocated that philosophy was about the betterment of ones fellows lot – the initial link to the lived life. Plato's view comes down most strongly to us today in the West, that is the separation of thinking and doing with the superiority of the former ideational form, indeed ultimately elevating it to the level of communicating at heavens rim with the Gods. Aristotle on the other hand first reified the lived social life as a valid focus for Philosophy. Subsequent Greek philosophers notably the Hellenistic or post Aristotelian philosophers have built on particularly the Aristotelian heritage and link to the Artificer concept most directly.

Pythagoras: the original out of body experience

To the Pythagoreans (582–507 B.C.), as part of the Ioan culture which, went on to strongly influence Greek culture, number was divine which meant it had mathematical and psychological meanings Wertheim (1997:25-28). For instance odd nos = male; even nos = female; 4 = justice as 4=2x2=balanced scale; 6=marriage as 2x3=femalexmale so 6=first baby. NB at this time the numeration system though Arabic and the same as ours today did not have the zero. Plato considered numbers divine and he equated them to gods.

The Pythagoreans wanted to hear the music of the spheres while alive not just when like everyone else they died, so this meant freeing oneself from the body (psyche) through mathematics so that one could rise to the rim of heaven (echoes of Plato!) and hear the heavenly mathematical music - that of the spheres - musical numbers the image of Gods mind. Wertheim (1997:56). Indeed Pythagoras conceived the universe as a vast musical instrument suffused with mathematical harmonies accessible through the logic of the ratio - ratiocination. In this way the Pythagoreans left the body and ultimately left nature itself.

So through Pythagoras we leave the body, the material, the earthly; wisdom is found in the Platonic sense on 'heavens rim' not in the Hellenistic sense of on the ground in discourse in the lived life with people who are living it.

Pythagoras & the Bushie

This freed them from any fundamental dependence on nature which was conceived as earth mother i.e. female and given the even number of 2 (the name of the supreme female deity who was material and also matter itself), with sky father given the superior number 1 that of Apollo the supreme male deity who was immaterial. To this day science still seeks this eternal life by removing any fundamental dependence. **Pythagoreans in this sense would have great difficulty with the Artificer who, embedded in his lived life, lives with reshaping matter** - who in effect to Pythagorean sensibilities, still 'lives with mother'.

This may to a point be contrasted with the embeddedness of craftsmanship in Christianity – Christ was a builder. Yet there remains a strong ambivalence as all creation/matter was tainted by original sin and redemption comes from above – NOT from our good works.

From the sixth to fourth centuries BC the 'esoteric' knowledge of Pythagoras as the Hellenic heritage was protected in the bosom of Allah. Wertheim (1997:35). Today this Pythagorean view is reflected by the socio-biologists who see ethics as an extension of genetics – 'genethics'.

The Greeks

The Greeks tended to have a bet each way. For instance Plato very much continued and deepened Pythagoras separation of the sublime and the mundane. Others such as Aristotle and the Epicureans however recognised the importance of practical wisdom to our humanness and so established a closer link between the artisan and theologian. Indeed the Stoics a group within the Epicurean mantle believed that nothing less than active practical reasoning is something of intrinsic worth and dignity, something essential to ones humanity. Here philosophy comes out of the lived life of the citizen whether she be philosopher or crafts person or house manger, so the sublime and the mundane dance.

[The heritage of the Greeks is dealt more fully in Chapter 11 the section *The Western Epistem - Thinking 'Othering' Doing* on in this e-book]

Philosophy – some descriptors

Philosophy as an art deals in valid and sound argument and is committed to outworking the truth in ways that contribute to human flourishing (eudemonia/efficaciousness/ artificer). So Philosophy is about (1) the betterment of others and (2) doctoring the psyche of false beliefs through a medical approach to the good life for a particular species Nussbaum (1994:61), which is efficacious, practicable and liveable by ordinary people with effort at learning and doing. Nussbaum (1994:62).

Socrates maintains Philosophy is not something you know but something you do for the betterment of all. Nussbaum (1994:345). As such books are at best reminders and can never substitute for active critical and practical activity in the pupil's psyche/soul and if one reveres them they can induce a damaging passivity. We need to obtain, maintain and retain distance and critical autonomy, and I argue – implementability, from the texts/doxa. Nussbaum (1994:346). Such consideration must be done as a whole not looing for epitomes of the great books though not necessarily considering each page. You can look in detail at an arm (separate limbs) so long as you know how it comes from, and operates in, a whole body. Nussbaum (1994:348).

Hellenistic Philosophy (HP)

A period of philosophy conventionally defined as running from 323 BC to 30 BC and centred on the philosophical schools in Athens: the Lyceum, the Academy and, most importantly, the new schools of the Stoics, Skeptics and the Epicureans. It is also known as **post-Aristotelian philosophy**.

Starting Point of HP

Indeed the Hellenistic philosophers considered Aristotles view that character building as antecedent to philosophy a cowardly halfway measure that fails to address the most urgent human problems. Nussbaum (1994:78). So the Hellenistic argument is that Plato is off with the clouds and Aristotle has one foot there and one on earth thus satisfying neither all that well. With A emotions can be refined and the philosopher can become king however ordinary lived life and its human misery cant be helped all that much Nussbaum (1994:101). The H's say if P does nothing to alleviate human suffering it does nothing at

all ‥ This is why the Hellenistic philosophers 'feel' they must leave Aristotle behind.

In the ancient world, the process by which Greek language and culture were disseminated among non-Greek (usually oriental) peoples, initially a spontaneous development, from the time of Alexander the Great, it became a deliberate policy: he and his successors planted Greek city-states all over their dominions to produce cultural unification.

Hellenistic philosophy was based in the polis

 [**pol**is, **po**lays](plural **poleis**) Conventionally translated 'city-state', the principal political and economic unit of classical Greece. There might be differences of political colouring between one polis and another. Some (eg Athens) were full-blown democracies, while others (eg Corinth, Thebes, Sparta) were more oligarchical in character. But all possessed the same basic organs of government - an assembly of male citizens, an advisory council, and elected executive officers. Always self-governing, they were usually economically self-sufficient as well.

Hellenistic philosophy enshrines Active Practical Wisdom (HAPW)

These HAPW characteristics drawn principally from Stoicism in one's/my search for Eudemonia

Active Practical Reasoning/Wisdom is developed most strongly in Stoicism (1) something of intrinsic worth and dignity, something essential to ones humanity. Nussbaum (1994:321). ←**Stoic principle HAPW** means also (2) being virtuous (3) balanced (thus limiting emotions) (4) skilled in techne and (5) able to be counted on to (6) do the right thing at (7) the right time in (8) the right way 477 while (9) helping others considering (10) the exigencies of circumstance . My word is my bond and I hope though don't expect you to be also. (11) respect for the emergent equivalence and autonomy of the student (=/scepticism). Though the outworking of this equivalence in both the 't'eacher and pupil will take substantial effort intellectually and practically.

Generally speaking HAPW approaches therapy is more about altering the student's needs to meet the world rather than VV. Nussbaum (1994:502).

HAPW seeks not so much in the Skeptical distance indifference and counterpoint or the Platonic rim of heaven or the full Stoic extirpation of passion and emotion, rather as with Socrates and Aristotle in the active search for and practice of wisdom HAPW that is committed to (12) excellence and truth, equipoise (PW tensegrity, intensegrity, dynamic tension) and equanimity (PW). Nussbaum (1994:485), all in direct and deep concern fo or the interlocutor's concrete needs and motives – a balance of inner and outer concerns. And N argues Nussbaum (1994:485) the Socratic cross examination method of case study cross examination *elenchos* the Harvard method in short dialectical philosophical method. Essentially Epicureans ask: How then should we live? (Answer: HAPW in doing) and not What is Truth? (Answer: Heaven's rim – in thinking). It is the particular circumstances in which an action is undertaken that give it its moral status [Stoics - Nussbaum (1994:487)]. The practice of HAPW includes critique which must be undertaken from within the pupils own beliefs and desires including her unconscious motivations, intentions and desires. All ethical theories make the connection between truth and desire Nussbaum (1994:491).

Yet the Stoics cant explain altruism, compassion or mercy as they have extirpated the emotions. Nussbaum (1994:496) plus if virtue is sufficient to itself why would others (less virtuous) need 'help' from the virtuous Stoic, although Seneca does introduce the concept of compassion in relation to peoples 'circumstances of life'? Nussbaum (1994:497)

The Stoics commitment to HAPW prevents the student seeking any dogmatic shelter (although at times S can be quite dogmatic not dialectical it is still fundamentally

committed to pupil expressed HAPW). Here nothing is reliable except ones own rationality and with this one must test each truth claim through reflection, self examination, experience and dialogue and even dialectic. So the Stoics seem to do the most to address what can be seen as the 'dogmatism' of the Hellenistic MP schools. 494. And as such are more aligned with Aristotle and Socrates esp. in their open-ended student oriented questioning process.

Hellenistic Philosophy & Mutual Aid (MA)

The human being is born for mutual aid. Seneca (1.5.2). **QQ on anger. QQ on mutual-aid**

> Whether or not it is according to nature will become evident, if we examine the human being. What is gentler than the human being, when he is in a right state of mind? But what is more cruel than anger? What is more loving to others than the human being? What more hostile than anger? The human being is born for mutual aid, whereas anger is for destruction; the one wants to join together, the other to rend asunder, the one to help, the other to harm, the one to come to the aid of even strangers, the other to attack even those nearest and dearest; the one is ready to spend himself of the well-being of others, the other to plunge into danger, so long as it can drag others along. [Seneca (De Ira - 1.5.2) quoted in Nussbaum (1994:412)]

For the Aristotelian and Stoic alike in seeking eudemonia the focus is on active practical wisdom which, in turn, emphasises itself through virtuous life of balance, health and mutual aid and thus reduction or elimination of uncertainty associated with a certain turning inward and exclusion of dependency on externals esp. wealth and status, on getting clear about the pattern of ones target and reliably hitting it. This can miss the point that some great goods in life and nature are not susceptible to such domestication and at time some great values require us not to care for life and limb above every other thing. Nussbaum (1994:481). Life can be forked as in Seneca's play Medea – sometimes the snake of our life settles his coils in orderly rings, sometimes slithering off to find someone else to murder. We are not 'safe house' dwellers but rather soft and sinuous weaving in and out of this world and in and out of one another.

A summary of Active Practical Wisdom.

So for me the concept of Active Practical Wisdom is about acting ahead wisely and is vital to this thing we call 'humanity' however it needs to be expanded to include the instrumental and substantive dimensions of retroductive enactment in the sense of Artificing in that answering the question *'how then should we live together towards a better world tomorrow for our global children'* has both substantive and instrumental dimensions, linked by techne, both inherent in the concept of Artificer and is a counterpoint to today's dominant view/meme: *How much then can we consume individually, conspicuously and hedonistically today for our maximum personal social status tomorrow?*

So we now have Enacted Active Practical Mutual Aid Wisdom expressed through the lived social life. This I believe also describes the Artificer heuristic.

The human virtues & disvirtures come from the lived life

To take the lived life seriously, and Lucretius does not do this ostensively at any rate, one needs to Nussbaum (1994:225-6) explore the thought that the structure of human experience, and therefore of the empirical human sense of value inc. ethics and beauty, is inseparable from the finite temporal structure within which the human life is actually lived. All come from a view that human effort needs must be structured and as it is constrained in time needs outworking to be useful (a critique of groundhog day). So in that the gods cant experience this as they are immortal they are in a way dead or closed off from this human

feeling and these human values (though they may be perfectly happy with this) Nussbaum (1994:229)

Virtues of friendship, love, loyalty (this is not a rehersal), persistence, justice, interface, moderation and in particular courage and morally virtuous action get their point and their value within the structure of the finitude of human time Nussbaum (1994:226), and the self reflection and self-understanding as a finite temporal being that Nussbaum (1994:228) this stimulates, as they extend over finite time. [e.g. courage comes from acting and reacting in the face of death for yourself and or others] [Aristotle says that the idea of debates Nussbaum (1994:228) about justice and contract among the gods is a ridiculous idea (Aristotle - Nicomachean Ethics (NE) 1178b10-16). Consider it is hard to imagine Apollo taking and enjoying a walk in the park. Nussbaum (1994:229).

On the flip side fear and violence come from temporality. And both are tragically endemic in human life, and in some regards outweigh the former positive virtues. Indeed the human being is to Lucretius more violent than the monsters of myth. Nussbaum (1994:240-1). Anger for Lucretius is very closely connected to Gratitude Nussbaum (1994:242) – both are passions and reciprocal in Lucretius's view. Some forms of anger are acceptable as Aristotle spoke of 'retaliatory self-assertion' i.e. not a push over/around, Nussbaum (1994:244) and the bible speaks of 'righteous indignation'.

The Structure of Hellenistic Medical Philosophy (MP)

Cicero – There is, I assure you, a medical art for the soul. It is philosophy, whose aid need not be sought, as in bodily diseases, from outside ourselves. We must endeavour, with all our resources and all our strength to become capable of doctoring ourselves,[(TD – Tusculan Disputations 3.6) quoted in Nussbaum (1994:14)]

Hellenistic Medical Philosophy no longer thinks as with Socrates, Plato and Aristotle reflectively on the world rather it plunges into the world Nussbaum (1994:36)

Medical Philosophy deals with reasons, emotions, passions and beliefs Nussbaum (1994:37). So Medical Philosophy is about dealing with the patients invalid inferences, false premises and also to grapple was well with her irrational fears and anxieties, excessive loves and crippling angers as well as unconscious belief and desire a key contribution of Hellenistic Philosophy is the idea of the unconscious desire. Essentially Medical Philosophy believes that reason can cool emotions Nussbaum (1994:38-39). Fears and obsessions and anxieties are linked to passion is linked to belief and belief can be changed rationally by argument and reasoning.

Medical Philosophy as Therapeutic Logos

Medical Philosophy is another way of saying therapeutic logos Nussbaum (1994:116).

Medical Philosophy as a Therapeutic Community

Nussbaum (1994:119-121) outlines Epicurus's therapeutic community. Reasoning for Epicurus must like Plato make a direct practical contribution to community life and relieve human suffering otherwise it is empty and useless. A on the other hand thought that abstract or theoretical philosophy and its associated reasoning were sufficient in themselves and could also be seen as practical as they were part of eudemonia.

Epicurus needed a therapeutic community separate to the polis as he considered it necessary to 'redevelop the psyche' where as A considered the existing polis sufficient even positive. Nussbaum (1994:120).

Epicurus and Aristotle have different views on what is most central to the philosophical quest. Nussbaum (1994:122) A sees that reflective evaluations based on ed and communal

experience in the broader polis are more reliable than is untutored desire. Epicurus on the other hand sees reflective evaluation as full of delusions and has, as we have seen, more confidence in untutored desire [footnote 43 - Nussbaum (1994:122)].

In this sense Epicurus's approach to philosophy is revisionary whereby many of ones existing drives and desires and appetites etc are seen as hollow in a shudder of realisation obtainable once one enters the therapeutic community. Whereas A takes ones existing views and develops them from this point on. Nussbaum (1994:123). Medical Philosophy then is a search for the Truth and the truth is to be found in Eudemonia (not at heaven's rim) is to be found through ethical inquiry as practiced by Medical Philosophy. Nussbaum (1994:41 footnote 35)

Medicine may heal the sickness of the body, but wisdom (sophie) can rid the soul of its suffering (pathos) Nussbaum (1994:51) quoting Democritus.

Medical Philosophy is committed to:

Amelioration of human suffering and enhancement of human flourishing through logical reasoning and thus Nussbaum (1994:35) to the marks of good reasoning such as: clarity, consistency, rigor, scope, disprovability, respect for alternative views, non dominance, open disclosure, communicative competence, reflexive, self evaluative, critical/constructive, analytic/synthetic, engagement enactment and breadth and depth of application – walk your talk and talk your walk so to speak/talk.

Medical Philosophy needs to be practiced with the use of:

- Imagination
  Narrative
- Community
- Friendship
- Rhetorical and literary forms of deliberation [Nussbaum (1994:36)]
- Compassion
- Self administered communicatively undertaken
- Practical living skills
- Commitment to Action therapeutic

A Heuristic for Hellenistic Medical Philosophy (MP)

Ablative - taking away or removing. 'Where the heart is forestalled (pre-empted) with mis-opinion, ablative directions are found needful to unteach error, ere we can learn truth.'

The medical analogy has valid heuristic and justificatory value in explicating the practical use of philosophy. Nussbaum (1994:316)

  Meta heuristic – outer symptoms, inner symptoms and moments of acknowledgement
  Nussbaum (1994:199)
(1) Description of the pattern of behaviour that lacks adequate explanation. Nussbaum (1994:196) (objective condition) [Epicurus/Lucretius argues that behind most of these patterns is the fear of death]
(2) Listen to the patient (subjective condition) by …
(3) Seeking out and recognising the patient's acknowledgments and confessions and remediation's Nussbaum (1994:196) and…
(4) Seeking out and recognising the patient's deepest yearnings while recognising while all the while…
(5) Having an eudemonia (objective condition) (for a life of human flourishing – happiness in action) path in mind with a specifically relevant path thereto for that patient Nussbaum (1994:26). Eudemonia to be adjudged by functioning human

individuals (v's collective) in accordance with their own choice and practical reason – this is the ultimate end for institutions and choices Nussbaum (1994:100) – need for powerful and functioning pictures (intentionality/exemplar projects etc) of human flourishing inc. human excellence, social design and h social justice Nussbaum (1994:138)

(6) Draw these together in an explanatory hypothesis, oftentimes ablative, sometimes indicative always intentional always personal yet recognising the collective and strongly intentional. Nussbaum (1994:199)

(7) Carpe Diem – seize the day Nussbaum (1994:138) – literally seizing the occasion most perspicuous and salubrious to the patients needs and yearnings (see (2) above)

(8) Engage the patient in the above inc. actions/projects/therapies that contribute to understanding self reflection and potential remediation's of the condition/situation – a re-constitutive space without fear

(9) Allow the joyous side of life to emerge supported by serious argument and engagement Nussbaum (1994:159).

Medical Philosophy & Eudemonia as the flourishing of human life

Nussbaum argues that such a normative idea of the flourishing human life distinguishes Hellenistic Medical Philosophy's Nussbaum (1994:26), as an almost ideal development thereof. As such she continues a Medical Philosopher needs to be much more critical and sceptical than the medical doctor when receiving the patients own diagnosis or description of symptoms as these are filtered through his or her own social and personal filters, because (a) these come through the lens of the actual disease and (b) the environment may well be diseased – e.g. fascism, or excessive emphasis on money, competition and status. Nussbaum (1994:26)

Health & the 'heaven's rim' separation of Thinking & Doing viz. 'the lived life' in Plato

Arendt's (1963:177) challenge of re-ligo thinking and doing on her acknowledgement harks from the schism between the two that occurred in the Greek age of Pericles some 430BC and is also is reminiscent of a contemporary challenge of around 300BC by the Hellenists to the followers of Plato (427-347BC), in that the latter viewed ethical truth to be out there – objective, external - 'on the rim of heaven looking in and discerning through thought the eternal truths and forms' and it is the role of politics to bring the conditions for the heavenly good life to be realised on earth – (by thinking) the ideal or noosphere.

Whereas the former viewed the ethical life was to be found within (by doing) the lived reflective organic and political life, wherein politics has the role of attenuating such desire for heaven and problematising everyday issues such as consumption, ownership and expectations – possibly in today's terms 'real politique' of life in interaction with the physiosphere. Nussbaum (1994:23). Health, a modern metaphor for the good life, for Nussbaum (1994:19) does not have an existence up there, for instance in heaven where 'everything/suffering is for a (ethereal) reason – if we could but determine it', apart from the people and their lived lives.

Health then, as human flourishing, is not a pure being apart from a patients becoming, and the 'patient' is an individual physical social entity – human being; and 'becoming' is likewise. This, in my view, is the grand mal mistake of the new agers who see suffering inc. cancer as caused by the person for an ethereal reason – if we can but know it – its out there. Health/science/the good life/wisdom does not have an existence up there in heaven, totally apart from people and our lives. It is a constituent of the form of life of a living species; and it is to the form of life of the species, and the experiences in

living it, that the doctor must look in constructing and norm and a remedy. Nussbaum (1994:20).

This separation has philosophic tradition with roots beyond Plato supports the notion that ideas - the tissues of mind - are the ultimate realities, compared to which phenomenal bodies, events and experiences are, at best but like shadows in a cave. 'You must forgive me, dear friend', said Socrates to Phaedrus, 'I'm a lover of learning, and trees and open country (read 'the world of nature') won't teach me anything.' Here the Earth's surface can be seen as vulgar and faintly improper for philosophers and spiritually minded people; it is contrary to the spirit of the age, because air and stars and mountains 'give no ideas'. And for those who want to know what the Earth is like can harken to the popular slogan 'beware of firsthand ideas (or actions for that matter)!', rather one can listen to lectures on it, compiled from lectures formerly given on the basis of even earlier lectures.

Medical Philosophy & Ethical Disease (ED)

ED and Epicurus Nussbaum (1994:108) is to start from a child before they/we are corrupted by our systems and observe them. Such a creature has the aim of freedom from disturbance of the soul inc. anxiety (ataraxia) and freedom from pain in the body – these are the uncorrupted creature's goals. Nussbaum (1994:109) – in short Aristotle's 'unimpeded activity of the natural conditions [NE: VII Nicomachean Ethics EN as per Nussbaum] not constrained or impeded by hunger, disease or fear, in other words happiness coming from a settled condition – Aristotle's *hexis* and Epicurus's *katastematisis*. As well as the reasoning associated with this condition.

Epicurus presents us with a powerful intuitive picture of the creature humanis who comes into the world well equipped to pursue its own satisfaction in an exuberant healthy way and for whom the conventional sources of social teaching seem at best to be sources of constraint and impediment. This uncorrupted creature is not very good at discovering instrumental reasons and means to achieve this ultimate end. Nussbaum (1994:110-111).

Ethical Disease then becomes the social perversion of such 'natural' traits. For instance the empty longing of greed and jealousy as well as cravings for luxuries and delicacies esp. food Nussbaum (1994:112) Epicurus like Aristotle argues that natural desires have a limit biologically Epicurean and eudaimonially Aristotelian. It's not the stomach that is insatiable but the mind that convinces it that it needs an in unlimited amount of food to satisfy it. Nussbaum (1994:59).

Re-combining Thinking and Doing

For a Platonist thinking and action/doing are opposed in that being an ordinary citizen for Plato means staying at a lower level of reflection that n either discovery or contemplation, Nussbaum (1994:33), either contemplation of the true good or service to ordinary citizens. Hellenic conception of the *flourishing human life* includes, nay embraces thinking and doing and more – eudemonia.

Medical Philosophy then re-combines the: Nussbaum (1994:32)
1. Critical power of Platonism (is does not have to = ought and ought can be out there)
2. Worldly immersion of ordinary-belief philosophy
[further something of its own]
3. Commitment to action
4. Fitment of this into a utopia – eudemonia

Medical Philosophy as an analogy for Vocational Education

Nussbaum (1994:67) The person who is good at deliberation without qualification is the one who improvises according to the reason at the best for a human being in the sphere of things to be done. Aristotle (NE) 1141b13-14.

Nussbaum (1994:67) Practical wisdom is associated with particulars and not only with general rules alone EN1141b14-16 Aristotle.

In this way a person who wishes to be accomplished in the sphere of things to be done must be prepared to encounter new cases with responsiveness and imagination, using what she has learned from her study of the past but cultivating as well the sort of flexibility and perceptiveness that will permit her in Thucydides words, to 'improvise what is required'. Nussbaum (1994:67)

Aristotle differentiates strongly matters of practical affairs from science (which he claims is about eternal truths and thus essentially unchanging). Plato however goes further and uses science in the sense of eternal truths as a metaphor for managing practical affairs. [Platonic approach to Voc Ed=current approach]

Let this be agreed on from the start, which ever statement about practical matters ought to be said in outline and not with precision, as we said in the beginning that statements should be demanded in a way appropriate to the matter at hand. And matters of practice and questions of what is advantageous never stand fixed, and more than do matters of health…. For such cases do not fall under any science or under an precept, but the agents themselves must in each case look tot what suits the occasion, as is also the case in medicine and in navigation (Aristotle NE 1103b34-1104a10) 66 [Aristotelian approach to Voc Ed =Artificer Learning]

For Aristotle 'discrimination lies in perception' (NE1109b18-23; cf. 1126b2-4) + general learning, life experience and history Nussbaum (1994:68) + resourceful imagination – which for A can only be learnt through experience – to seize the occasion – carpe diem. For A the goal of good theory is not knowledge of the eternal truths rather it is good practice Nussbaum (1994:68).

Education is a two-way process of mutual illumination between experience and a general view of human life Nussbaum (1994:69) – which never claims finality – ie is always provisional – thus my personal ethical manifesto is to be provisional – an Aristotelian perspective – is a retroductive one between theory and experience.

For Aristotle the teacher and pupil are involved in the very same activity. The student is not subservient rather independent, not worshipful but critical. Nussbaum (1994:74). Further the teacher's lectures do not claim finality, and they repudiate dogmatic and subservient praise. Nussbaum (1994:76).

Hellenistic Philosophy – the Exemplum & the Exemplar – a retroductive interface

The Exemplum- the big picture counterpart of the Exemplar

Clearly the *exemplar* project is a physiosphere tangibilisation or concretisation of certain general principles of design and aesthetics as well as a certain moral scaffolding i.e. an exemplar project embodies a noospheric tangibilisation of eudemonia, the good life or what we may call a flourishing humanity, in the form of story/narrative (and vice versa). This in ancient times was a crucial part of *active practical knowledge* what was philosophy was called the *exemplum*. An example of an exemplum would be a story or narrative or parable that portrays what it is like to live in this particular form of utopia, or it might be a story

about a particular fishing trip when a fisherman used a particular boat and how it performed in rough waters etc.. In this section we explore the meaning and components of the Exemplum and relate the concept to the Exemplar as in 'exemplar project'.

The Exemplum, Techne and the Exemplar – introducing a retroductive dance

Introducing the Exemplum – parable as a learning metaphor for ESD

At once the expression of ones best artificer efforts and the concrete distillation and expression of the general principles involved in the actual exemplar project. This then is the retroductive moment of (1) the *Exemplar Project* as we move from the concrete project (2) to *the individual* with her *techne* to, and then to, (3) the *general principles* embodied in the exemplar project as well as then incorporating (4) for interaction and reflections between the two. Consequently the *Exemplar Project* is at once a masterpiece (distillation of the *techne* of the individual) and an *exemplum* (concretisation of the principles therein embodied)[48].

In this sense the *exemplum* is deductive and uses a story/narrative/parable e.g. a fisherman using a boat, to exemplify broad principles such as: design principles, theoretical concepts, engineering criteria and formulae, principles behind standards and regulations, aesthetics, sub-system interface, whole system synergy, and especially harmony with the universe viz. link to the 'good life'. In this regard 'telling' the exemplum is broadly analogous to an Exemplar Systems Development. Substantial use was made of the *exemplum* in this manner, applied to philosophy in a medical analogy by the Stoics a branch of the Epicureanism in 4th century BC Athens, in that 'T'he aim of philosophy the individual is to assist in human flourishing or eudemonia, a form of utopia, which would be described in narrative fashion for instance 'a day in ones life in utopia'. Nussbaum (1994:339)

The 'braiding' of Exemplum & Exemplar through techne

As the general propositions become better and better embedded in the individual's techne they suggest a new way of seeing and adapting the concrete *exemplar* case, where the exemplar project is an inductive one whereby it is a concrete prototypical expression of the artificer impulse in order to reify or *test the exemplum*; and as the reworked concrete case as an 'exemplar-um' is 're-viewed' (seen again yet anew) gives force and vivacity to the general proposition and principles embodied in its construction and operation. Nussbaum (1994:339). Here we deliberately aim for transference wherein the exemplum is better than abstract ideas in that it is narratively based and vivid enough to allow one to imagine a different way of perceiving ones exemplar project. Furthermore the *exemplum* can be more available to a pupil because the pupil has no bias with regard to it. Nussbaum (1994:339).

This retroductive excellence however for the Stoics can only produce what they call an acceptable act or *kathekon*. To become a fully virtuous act, an act that is part of human flourishing, part of eudemonia, or *katorthoma*, the act must be done 'as' the wise person would do it – with her heuristics and insight and compassion etc. – all appro pos to virtue, to do unto others …….. General content rules cannot therefore produce a correct result as

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[48] As used by Nussbaum *exemplum* is used in the Stoic Epicurean philosophical sense and expands somewhat the conventional meaning of 'brief story used to make a point in an argument or to illustrate or concretise a moral truth or principle' to include 'the set of principles moral and otherwise involved. For Nussbaum (1995:339) the exemplum is better than abstract ideas in that it is narratively based and vivid enough to allow one to imagine a different way of perceiving ones and likewise the actor pupil has no bias with regard to it nor confusing surges of feeling as with the specific exemplar project which is active practical knowledge in action. The exemplum then, often a narrative illustrates the retroductive link between the particular and the general i.e. between the individual exemplar project and the good life so to speak.

they only outline 'what' a person ought to do but not 'how' they should do it. Nussbaum (1994:339)

Exemplar in and of themselves do not by themselves have this procedure, which includes motive, tone, response, skills, expression, intensity, devotion to reason, level of methodicalism, understanding the big picture/Global Problematique and so forth, the procedure needs to be explained and demonstrated in a master-artificers heuristic. Nussbaum (1994:340). In an ultimate sense ones lived life becomes an interface 'braiding' between the exemplar and exemplum, between doing and thinking.

So the *exempla* – the concretisation of the exemplum – at once fuse two apparently separate activities viz. philosophical reason/rationale and virtuous action. That which makes god action virtuous is the dedication to reason out of which it grows its raison d'etre and the exemplum toward which it grows its entelechy.[49] Nussbaum (1994:341). Here we can see the fusion of philosophical reason and virtuous action. Echoes of moral consciousness and the emergence of what Habermas (1992) calls communicative action.

The Exemplar – a mirror to ones soul

Even this however is not the end of the story there is yet another philosophical moment, a reflexive one whereby the fusing provides a light for the artificer into her soul to understand a little more of the meaning of life. The concrete *exempla* then becomes a mirror to such depth perceptions – a mirror of human nature cp. Rorty (1980).

Seneca implicitly compares the exoteric exemplar with the esoteric spaciousness of the soul as: a dark secluded grove, formed by the overarching branches or to a cave made by fallen rocks that holds a mountain on its back or to pools that seem sacred because of their darkness or their immeasurable depth. 340. Herein Stoicism like Epicureanism self encounters Self. The reflexive moment of this is to balance external contemplation of the exemplar in daylight with internal mediation on the exemplum at night. Nussbaum (1994:341)

Differentiating the Schools - the boat metaphor in different Schools – Epicurean, Aristotelian, Skeptic, Stoic

- **Epicurean**[50] view is like a boat that has predetermined structure and direction based on perception rather than theories – an e seeks complete freedom from bodily pain/fear of mortality through its opposition and negated by philosophical reflection – **here the doctor** assists the pupil to move away from fear of death and associated pain
- **Aristotelian** view is like a boat that is rebuilt as one goes along – adjust ethics to the context ie contexthics

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[49] **en·tel·e·chy** (en-TEL-uh-kee) noun -In the philosophy of Aristotle:
1. The condition of a thing whose essence is fully realized; actuality.
2. The process of the most perfect realisation of potential in an exemplar, best of class
3. In some philosophical systems, a vital force that directs an organism toward the telos i.e. self-fulfilment
 [From Late Latin entelechia, from Greek entelecheia, from enteles (complete), from telos (end, completion) + echein (to have).]
'It concerns the means, or entelechy to realise our potential and get to our final end, our telos, this is the purpose of our existence, where we are going to go.' Gray Henry; The First Prophet; Parabola (New York); Spring 1996 [adapted PW]
For the purposes of this section and indeed this book re exemplar project there may well be seen a relationship, though not direct equivalence, between entelechy and exemplar and telos and exemplum.
[50] Epicurean can be applied to all the following and is by Nussbaum however here it is used in its narrower sense of applying directly to the theses of Epicurus

- **Skeptical** view is like a boat that is (not a boat) a fish 280 which goes through the tempest 'of life' without concern S- Stoics – rid one self of all (false) belief - as seeks complete freedom from the disturbance of belief by countering ones interest in 'boat' by constructive critiques – **here the doctor** leads the Student in rebutting her conventional beliefs in order to relieve her of her day to day consternations
- **Stoic** view is like exploring the way one sees this thing called 'boat' – perspectival – **here the doctor** leads the pupil in a joint searching exploration of self and culture

Can & Should Artificers make up an Hellenistic Therapeutic Community of Practice through Medical Philosophy?

Yes because:

Artificers practice –

1. **Active Practical Wisdom** done for the betterment of humanity viz. Socrates maintains *Philosophy is not something you know but something you do for the betterment of all.* Nussbaum (1994:345)
2. APW which, is of intrinsic worth and dignity, something essential to ones humanity
3. APW which, manifests where the Exemplar and Exemplum manifest in the development of a concrete project/process/organisation
4. APW represents the fusing of philosophical reasoning and virtuous action
5. **Medical Philosophy** in that their exemplar projects are the breath of life to theory. For example Cicero – *There is, I assure you, a medical art for the soul. It is philosophy, whose aid need not be sought, as in bodily diseases, from outside ourselves. We must endeavour, with all our resources and all our strength to become capable of doctoring ourselves*,[(TD – Tusculan Disputations 3.6) quoted in Nussbaum (1994:14)]
6. **Combining Thinking and Doing** - Learning from the Exemplum while practicing the Exemplar
7. **In a re-constitutive space without fear** viz. the Exemplar Project, such a space was a pre-requisite for the Hellenistic Medical Philosophers
8. **Through a Community of Practice/Community Artifice**

The Renaissance

Intriguingly some including Wertheim (1997:57-58) argue that one key causative attributes of the Renaissance was the linking of theology with the practical for instance in building the great cathedrals of Europe. In this sense theology (which then encompassed science) was brought to bear on the every day concerns and ordinary crafts people became recognised as crucial to the expression of Gods will on earth.

She continues that unlike the Greeks, who developed philosophy without marrying them to practical goals; and the Chinese who she argued had technology but this was kept far from the merchant's thus again separating thinking and doing; **the Renaissance melded both**. So much so that she allocates almost a causative influence in the Renaissance of the growing respect for crafts and trades, which after all distilled the ancient and celestial science of numbers and measurement into everyday life. Indeed we now find **God 'him'self seen as an artisan**, nevertheless with the best and most systematic symmetry of all. Wertheim (1997:64). A crucial attribute of this artisan and his exemplar projects then was 'symmetry' called in this e-book 'interface'. In Renaissance terms symmetry is the

relationship (a) formed by the interface between parts as numbers, (b) between the parts and the whole scheme of things as God's creation and (c) of the parts in the project in the overall pattern of the universe/heavens need to be properly proportioned, elegant, aesthetic, efficacious and synergistic. Thus interface is a quintessential Renaissance concern, which unfortunately today is receding as theory as 'theor(log)y' reasserts itself as prime.

Alchemy - Hermes Trismegistus

Although his works probably weren't all written in Egypt for some time the H was seen as a competitor of Christ and certainly as the demiurge. Wertheim (1997:88). It was found through detailed philological work in the early 1600's that the works did not predate Egypt nor did they predate Christ (as it seems from some of the works when they anticipate both) rather they came from the late Roman period. Here k came not by study but by revelation. [Sir Walter Raleigh wrote the art of magic is the art of worshiping God']

It wasn't till 1563 that the Church at the Council of Trent prohibited magic. W considers this partly because women were involved in magic esp. the village wise woman. This underwrote the organic nature of the 'bottom-up' (female) 'world soul' philosophy of the Hermetics. Bruno was burnt at the stake in 1600. In the early 1600's this was seen (1620) as proof positive of an opposition to the church and the key 'water carrier' for this movement were women thus the killing of thousands indeed millions of women at the stake – ensured – this organic earth mother religion so much part of Hermes Trismegistus had to be wiped out at all costs. Rather this was countered by the great opponent of magik by Mersene, a mechanical physics based on mathematics, leaving the very male God as Patriarch in the sky. Wertheim (1997:93).

The Descartesian Revolution: res cogitans (mind) v's res extensia (matter)

This led Descartes (1596-1650) to establish his famous dualism of and *res cogitans* (the immaterial world inc. thoughts feelings and emotions) an objective world and *res exetnsia* (the material world of matter in motion- governed by mathematics) a subjective world 96. This radical separation between mind and matter, between thinking and doing, between object and subject, established a still unrequited dilemma for how does the former (our mathematical selves) fit into the latter (our bodily selves). This speciation then separation then expulsion from the every day world, of the mind is in some ways a continuation of the reaction against magik and alchemy of the 1300's and is embodied in his famous indeed immortal line in his Discourse on Method – *I think therefore I am*. Wertheim (1997:96). We can also see echoes of Plato's rim of heaven and the nascent separation of subjective and objective.

For Descartes Mind is no longer part of/immanent in Nature rather mind is separate to nature just as God is and the control of the latter of the former is by mathematics or 'mathamagik' and Hermes becomes a calculator. Supported by the Catholic and Protestant Churches by the mid 1600's Maths had triumphed over Magik – the Mechanical world view had triumphed over the Organic. Wertheim (1997: 97). Kepler's planetary laws and Newton's on motion and gravity eventually sealed the deal. Secretly however Newton (president of the Royal society for a generation – 20yrs, took a personal oath of celibacy and died a virgin) was a hermeticist and practiced alchemy at great length writing more on alchemy than mathematics though the former, still in existence, has never been published. Intriguingly gravity proved not to be a mechanistic force rather it acts equally, yet mysteriously and invisibly, across minute and astronomic distances. Gravity Wertheim (1997:119) argues is therefore a more an alchemic force.

Atlantis resurfaces - Bacon

Bacon in his famous treatise 'New Atlantis' (1627) in a sense competes the trajectory and now that Nature has been separated from Nurture (God) he uses science to lead us to 'truth' via. Nature with all her children so that you, with science, many bind her to your services and make her your sleave'. Intriguingly New Atlantis was a Utopia where women/mothers are kept behind a screen and sit but are not seen. Wertheim (1997:154-155). Science by the early 1630's was seen as giving 'man' the power to conquer and subdue. This in Bacons 'vision' was more to achieve a prelapsarian or Edenic state of grace where 'M'an was in communication with God who created man to have 'dominion' over His creations. For Bacon Man was a demiurge and needed to regain this 'command' status. His New Atlantis is ruled by the 36 wise fathers

Wertheim (1997:155) continues the locus of this defining activity in Solomon's house, the capital of New Atlantis, resembles a monastic order. The core of the institution is a group of 'thirty-six fathers' whose self-appointed mission is to find 'the knowledge of causes and secret motions of things' and to use such knowledge for the 'enlarging of the bounds of the human empire, to the effecting of all things possible. Above all, the fathers of Solomon's House strive to apply their knowledge of nature to the betterment of citizens of the New Atlantis state. And because they are not just scientists, but also priests, their industry lead to a better society morally, as well as materially.

Thorough Pythagoras we left the body and then leave nature now through Bacon to become as a god now with science we return to nature to control and command nature and ultimately the body. Wertheim (1997:159) The first half of the 1800's resulted in numerous inventions and mechanical marvels from time keeping to steam engines to electricity and medicine, coupled with Bacons episteme, continuing that of Descartes of a separation of Nature, Nurture a third attribute was introduced, that of Necessity (the natural world - Nature, environmental considerations esp. in the upbringing of children – Nurture, and now necessity through the ability of science to Necessitate certain directions of development in the other two esp. the natural world).

Now enter stage centre - Evolution

Then slap bang in the middle of the 1800's we have the formal parting of the ways between science and religion with God being removed from Nature and man being put back into it, by the 1859 publication of Darwin's The Origin of Species by Means of Natural Selection. Wertheim (1997:162) Subtly and sometimes not so subtly, now that religion has been bumped off salvation is now portrayed as coming through Science, a science at odds with nature and a science seen as supreme in itself. Accountable to none, a science that conceptualised Nature (which now includes man) as a gigantic 'machine' operating on algorithms i.e. formulae and ratios in short mathematical theories which could be accessed by the scientific 'mind' reinforced its separation from natural 'matter' and 'thinking' i.e. the mind is forever separated from 'doing' as in 'matter'.

Descartesian dualism is alive and well.[51]

Once articulated these algorithms can be input rather simply to robots and we have androids indeed. It is estimated that by mid this century the computing power of a lap top will equal a human mind. The chips in this regard really are down for the human race and indeed one may in some scenarios seen us as the chimps of tomorrow.

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[51] Wertheim (1997) maintains that this divide was also a gender one with the 'mind' being appropriated by the male leaving the 'matters' of everyday life and home management for the female. Her evidence and argument is quite convincing in this regard.

Marx - We are what we build

The core idea is that a collective world view is expressed through subjective underlying cultural values that are in turn reflected it what, and how, we build the big-ones. We started by building hill-forts and sacred groves 1000BC-0 (through - coercive- direction of the military and priesthood), then we moved to castles and churches (to middle ages 500AD to 1400 - again through the feudalist coercion and in Europe the collaborative approach to building churches at Chartres for instance), then to banks and insurance houses (1800 to 1980's - by now the 'D'esigner/Architect was in charge and there were executives and workers) and now it is sports stadia and casinos (1980's to present - by now part of the construction is automated and the separation between thinking and doing continues).

Technology as the principal driver of technological change

This idea can be expressed as 'Technology is the principal driver of social change' that is our constructions simultaneously form and yet are shaped by our values and beliefs. By derivation is a Marxist one. Marx wrote approximately: the water mill generated feudality, the steam engine generated capitalism. And, for more than a century, the idea that civilizations were shaped by the 'objective conditions' given by technology, considered as an external unpredictable input, was the basic analysis that determined for the Marxists the 'sense of history'. Of course, the historical information available at Marx's time was incomplete. We know now water mills in the 12th century (in Toulouse) that were companies divided into shares that could be brought and sold. We know that Japanese feudalism as little to do with water mills and also that watermills were invented by the Romans, dismountable, for the use of their army.

Yet Marx's basic idea has proved so strong that it stayed in the mind of 20th century historians. This leads us to the fundamental question: what determines historical evolution? According to most secondary teachings, history is taught as the result of human decisions. But is that really true? All species adapt to their environment and for humans this is accomplished through technology. So in this sense it would seem that technology as prime driver of history is from Modernity's perspective ultimately a quasi-biological law.

Here is another philosophical question, raised by Descartes and Heidegger. Descartes wrote: I saw the time has come when we (humans) will be like owners and masters of nature. He says 'like', because, to his understanding, the only ultimate owner and master is God. Anyhow, his position can to a certain extent be seen as a basis of the western civilization's arrogance that considers that nature is there to be exploited and that others civilizations have nothing to say about it. Heidegger's statement, from 'die frage der teknik (circa. 1953)' and 'die Kehre (circa. 1951)' is much more surprising. He says: the essence of technology is not technical.... the essence of technology is the being itself, the being of the spirit of technology.

Man will never control technology, because he cannot control the being. And he adds: the essence of *modern *(Heidegger thinks that the being changes with time) technology is the ge-stell, in other terms the requisition. To make it simple, the idea could be: under the pretext of man's needs, man requisitions nature and in order to operate this requisition he uses technology and also requisitions men to implement this. That means that mankind is in a sort of state of two-way possession difficult to escape viz. humanity develops technology and technology needs, feeds and seeds humanity.

Both are very strong statements. Artificing may be seen as one way of seeking to respond the question mark they raise, especially via. the term ethno-technology. It means the study of interactions between technology and society. On one side society generates technology through the innovation process; on the other, technology has a feed back on society that, in

most cases, was not anticipated. Technology then is like the sorcerer's apprentice, and for the conventional definition of technology maybe Marx was right.

Technological engine; Social engine & Technelogical engine - some comparisons

In a macro social sense, it is hard today in the West to refute the Macrohistorical claim that since Marx *industrial-technology is the primary driver of social development*. So in this sense technological change is the motor/driver of social change in the west and has been since the industrial revolution. It's as if we have collectively put our society on auto-pilot and taken our hands off the wheel.

Driver in the sense of motor and steering i.e. the key motivator for social change then, is a technological engine. Here the technological has almost completely superseded the social. All engines e.g. diesel, petrol, jet, rocket etc. take what is before them in the future, reprocess it in the present, and convert this into mechanical advantage via. thrust in the past, propelling the craft in the desired direction. So unlike bureaucracies that reprocess the past to move to the future these engines reprocess the future to move from the past.

If one undertakes the obvious critique of such techno - determinism ubiquitous as it is today and asks the Macrohistorical perspectival question of - well we know what a **technological engine** is however what then would be then a social engine? In this sense engine to be considered is the techno-determinist sense of <u>motor and steering</u> with the need to process what is before it i.e. the future via. reprocessing in the present into thrust into the past, which drives the entity in the desired direction.

Taxonomism - from the Chronicles of Riddick to Chronicling the Ridiculous

In the 2004 Science Fiction movie Chronicles of Riddick the anti-gravity engines of the Necromonger spaceships have the effect of changing the gravity situation near the space-ships to suit the requirements of the engines of the spacecraft. An homology for I am arguing here is that bureaucracies are the **social engines** of today not the demos or citizen participation or mutual-aid commons but simply the bureaucracies. They are the auxiliary class to the economic bourgeois - the machine. These move us into the future by altering the surrounding categories/environment immediately around them as input to suit the requirements for their existence/antigravity engines.

Thus the social engine operates by altering/consuming these categories as fuel through a fourfold complex system of sub-drivers the:
(1) Bureaucracy's flotsam and jetsam i.e. their <u>existing</u> taxons/categories of their <u>existing</u> policies/regulations which were established in the past, as well as
(2) Creative energies and projects of the people and communities which sustain them
(3) Categories/products from technology and
(4) Structure and operational nature of the corporation's, or 'corpor'n'ations, state and private that express these sub-drivers and.
In this sense bureaucracies extend and embed technology as driver and maintainer of the status quo. And indeed a most crucial part of the status quo is the Nation State.

No organisation other than bureaucracy as primarily expressed through the corporation it seems has harnessed all these sub-drivers in the field of the 'social engine'.

Taxonomism: the feeder on good citizen intentions

This means that as one approaches one of these spacecraft no matter what one is bearing e.g. a sustainability exemplar project, the Millennium Report [www.stateofthefuture.com]

volunteers NGO's with good intentions, urban redesign etc. these are all reprocessed into fodder for the engine in ways that shift the locus of authenticity to the engine itself not its environment. This has the effect of producing a futures insulation shield around the craft in that by consuming the surrounding environment in accordance with its own needs it prevents so called weak signals from the environment registering on and in the craft. This occurs no matter whether the craft is being driven in a positive direction or not. It is in the nature of the engine. Here we expose a fundamental weakness even fault line in Westminster systems of Governance in that they rely exclusively on bureaucracies to 'operationalise' Government policy. In reality this means continually shrinking commons and the trend to privatise or more recently 'globalise' the commons through globalisation. Achbar et al (2004).

NB: Bureaucracy comprises the blending of hierarchy <u>and</u> regimentation into power-over for political control - first widely implemented militarily by the Romans and frankly never bettered let alone superseded. Bureaucratic governance suits the stability of millennia past embedded in what may be called simplex systems where for instance a Roman foot soldiers salary stayed the same at 30denari per year, but the solider got a lot older. The social engine today still relies on this now non existent stability in categories and theatres of operation however, especially with global warming, terrorism etc. this is no longer possible.

This sorry state indicates the (bureaucratic) nature of the common denominator social engine of the Government and Corporate worlds both of which act to embed the macro taxon/category of bureaucracies and its associated taxons/forms/rules/regulations/policing. Today we find that 3/4ers of the largest economic players on earth are corporations, or 'corpor'n'ations' as I call them, and not nation sates i.e. Governments as we know them, so that with a global situation whereby *Government is national and Corporations are Global* then it is the latter which set the stage for enforcement by the former so that *governance becomes national beyond the reach/purview of even Governments.* Indeed as indicated above I call these blended structures 'corpor'n'ations'.

Introducing Taxonomism as the fuel for the social engine

So in this sense I argue that the power to taxonomise, or taxonomism as I call it, is at the heart of the stunted even usurped social engine of today. In fact the social engine of today has all but disappeared and has become nothing more than a technological, i.e. techo-mechanical, one. Especially for Western so called democracies, especially for Western Westminster bicameral governances systems of so called democracies, which maintain standing armies of bureaucrats 'armed' with their categories or departments and policies as processing regimes to 'operationalise' the enactments of the parliaments and corporate boards i.e. they produce the taxons and tax/charge the people to enforce these taxons on these very taxpayers. There is no room for the demos as the social engine, and its associated likes of self help or prosumerism (produce what you consume) and Artificer in this formula. Such bureaucracies permanently reinterpret, even reconstruct, even appropriate, the meaning of 'social policy' and 'consume', as a sort of Necromonger antigravity fuel for tanks of their spaceships viz. Departments.

He who controls the taxonomy controls the social engine, so the taxon becomes the fuel for the social engine.

From the Singing Tool to the Rebellion of the Tools

With Artifice we can learn to work with our tools. Here we can learn to sing with our tools to liberate our fellow and our grove. Yet writ large our tools have constructed our defacto social engine i.e. technology is the driver of social change today. We have to lean to get along with our tools lest they cease to get along with us. As our tools become sentient and we continue to separate ourselves from them by allowing them to determine our social engine we run the risk of abdicating our responsibility to our children's children.

Indeed in the Middle Ages the Mayan Creation Epic warned of a 'rebellion of the tools' generally around 2012, where humans are overthrown by their farm and household

implements. Wright (2004:118). The tools had become tired of being used for labour only with their thoughts, feelings and pain ignored. That is they had been used for doing with no conscious inclusion in the human venture. In such phenomena as the luddites, the story of the Sorcerer's Apprentice, Frankenstein, Tales from Nowhere Morris [see Briggs ed. (19620] and so forth we also see this fear of this 'rebellion. Here tools originally designed for our use become our masters such as for instance 'The Corporation' whereby a legal entity has been attributed with the rights and existence of a living human. Achbar et al (2004).

What would a technelogical engine look like?

In short - **in the flesh: an exemplar project** and **in the process: the four principles of the Artificer**. Some attributes of same would include: singing tools, heterotechnic co-operation, the four principles of the Artificer, interfaced design modules, technelogy transfer and so on in line with the artificer process explicated in this e-book. In short the technelogy engine is a braid or DNA type helix between human and tool input and human and tool outcomes for a better world.

God; Dancing, casts the Die not the Dice

This interface can be captured in one of Einstein's most famous aphorisms that has come down to us as 'God does not play dice' however another translation from the original German is 'God casts the die not the dice'. Wertheim (1997:185). Here God is the master Artificer – the Artificer of artificers so to speak, not so much the exoteric artisan shaping a superb piece of jewellery or instrument or even the esoteric demiurge shaping the world, who uses the tools that result from the die but conceiving, designing and casting the original die to make the first tool so to speak to match with the makers techne. These die represent his 10 formulae for describing the operations of nature – his theory of relativity.

Today some 60 years on and after the triumph of quantum theory of the 50's and fractal geometry and chaos theory of the 90's and now hyperspace theory I posit the saying as 'God, Dancing casts the Die no the Dice – so that the idea of a certain level of indeterminacy (dance steps are indicative not prescriptive) and heuristic cp. algorithm (a dance is a decision tree rather than production line) is in bedded in our cosmic aphorism.

The question remains, and so it should, is god dancing alone or with us or with science etc.?

Moreso as he sought to divert the onslaught of Quantum Mechanics which argues that matter can be energy waves/quanta or material building blocks/atoms the difference being change/probability. It seems that God does indeed play dice at least in the atomic and sub atomic realms. And that this is a profound difference to the General Theory of Relativity which relates to the macro atomic world we know and live in every day, he spent the last several decades of his life trying to reconcile the two, trying to find an underlying harmony, and failed. In the face of so little success he wrote: 'the search for harmony is the source of the inexhaustible patience and perseverance with which [the physicist] devotes himself'. Wertheim (1997:203).

The next step is to integrate gravity (cosmological), electromagnetism (atomic), as with Einstein's efforts, as well as the nuclear forces (strong and weak forces). The search today is for this 'superforce' of which the previous four forces are manifestations. This is called the 'Theory Of Everything' (TOE). Wertheim (1997:204). Now God is suddenly back into the picture – however we quickly move from God of Nature to God the Mind to the Great

Architect – who turns out to be quite different to the Grand Artificer of old – to God the mathematician.

This declension as I see it slowly and ineluctably removes (1) consciousness, (2) techne, (3) intentionality and (4) morality from the universe (possibly one could in the current tradition see (2) and (3) as subsets of (4) and (4) a subset of (1)) there is no grand heuristic, for instance it is God the Mathematician not God the DIY owner builder qua. artificer qua. Artificer, with dynamic plans that change as one goes along. There is still an ultimate determinacy it just takes a few more equations. Chaos theory and evolution suggests for me that there is a DIY Artificer – in fact none the less than a GTBP-DIY-YGA (Get the Big Picture and Do It Yourself as You Go Along) Artificer.

All this notwithstanding chaos theory with its beautiful expositor fractal geometry, that advocates indeterminacy is inherent in Nature, not stasis but not incoherence rather the boundary between where patterns are possible and self-organisation is the norm. Not stasis not chaos but the 'inter tidal' boundary between that is where life has taken root. Both complete periodicity and incoherence cannot sustain life it is the beach of spectral reserve between that makes life possible.

Rather all is condensed to a synthesis of a dozen or so formulae in short an algorithm, which one could be pressed and consider a blueprint. Science continues to see itself excluded from overtly responding to the Epicurean challenge 'how then should we live together today for a better world tomorrow for our children?' We inherit an inherently dualist science that profoundly, fundamentally and at root separates the mind from the matter. So much so that if one can use mind to understand the matter i.e. via. the cosmic algorithm we have nothing less than the mind of God.

This is the point we stand at today having done so much but achieved socially so little by estranging mind from matter, subject from object, thinking from doing, sky king from earth mother, heaven from earth, grounded (as in practical) from abstract or conceptual, yang from yin, even right from wrong. So we end up not with the thinking universe rather the mathematical universe, maybe not a clockwork one but none the less an algorithmic one. We still seem to have a 'mathemechanical' approach to explicating God who, as ever remains unseen in the background – no children here!! – the venerable yang priesthood of science, is still with us, and bigger and better than ever.

The ultimate algorithm - The Theory Of Everything (TOE)

So after 30 years of my inquiry and layman's interest, the spirit of the universe is still not much more than the mathemechanical ghost in the machine. Still we have the ascendency of the mathological over the mythological not even a 'sympathico' pas de deux let alone an 'empathico' 'salt walk of Ghandi' or 'mountain top visit – Martin Luther King' will be entertained towards rapprochement.

TOE (Theory Of Everything) seeks mathematical unity of all the forces in the universe. This needs an ultimate particle accelerator and one was started underground in California however costs blew out to over US$10b and the project was stopped by the US Congress. The ultimate particle accelerator however was the big bang, which for a dozen or so seconds produced temperatures hot enough for the unification of the four forces (electromagnetism, gravity, strong and weak nuclear forces). NB: four is actually a semi serious number for instance some physicists argue there are seven some three with the weak nuclear force and electromagnetism being seen as subsets of a broader electro-weak force, further there are now some 10 dimensions (apparently we only see the presently known four as the four operate in the broader cosmos and the other six in the sub atomic realm) are required for the integration of the four forces in what is called super

string theory where the common denominator between all forces are tiny strings of 'stuff' which unite only immense temperature, finally now there are literally several hundred particles so much so that there is almost a botany of species and sub species of particles – finally these change by the month as new particles/forces/integrations and so forth are 'discovered', a little like cancer research where every week brings a breakthrough.

Where the TOE formulae are seen for what they are the topographic/bathymetric lines on the consciousness of god and even more so the lines don't make the map and the map doesn't make the territory. Wildman (1976).

Structure | Intentionality | Agency | Causation ~ a modern day simulacra

Any serious theory of the Artificer must needs be based on a deep and efficacious understanding of a theory of causation. Such understanding is a pre-requisite to validate the practical effort involved in expressing the intentionality of 'releasing the angel in the block of marble' so to speak. Of ancient times this was called Active Practical Wisdom and has come down to us to day in terms of the agency | structure debate, which build on theory on/belief in efficacious causation and intentionality, which in turn leads to considerations of our theory of being - our ontology. As such our 'theory of being' will cover concepts such as intentionality, causation, agency and structure. Today however all we seem to be left with is a pale and fading simulacra with technology and social design all seemingly aimed at dumbing us down such that no individual agency, other than what colour car or shoes to buy, is required.

Firstly though what do we mean by these terms.

Concepts & preliminary definitions

Related concepts

Empowerment, individuation, self-determination, personal agency (personality dimension – can be tested for), independence, (moral) autonomy, intentionality, aspects of mutual aid, design, authenticity.

Preliminary definition of Agency

1. **The condition of being in action; operation, efficaciously exerting power instrumentally.**
2. **The means or mode of acting; instrumentality.**
3. Acting on behalf of another
4. A Government Agency

Preliminary definition of Structure

Structure, in this context, may be seen as the constitutive institutional arrangements, instrumental edicts, socio-cultural mores, governmental laws and regulations that focus, constrain, enhance, and enable individual agency and pre-distribute associated life chances.

Preliminary definition of Intentionality

Intentionality may be seen as the activity of distilling proactive intention i.e. about the future into work today. It is used in the concept 'evolutionary intentionality or anticipatory pattern'. Intentionality is aboutness i.e. about something some event some phenomena.

The term was coined by the Scholastics in the Middle Ages, and derives from the Latin verb *intendo*, meaning to point (at) or aim (at) or extend (toward). Phenomena with intentionality point outside themselves, in effect, to something else: whatever they are *of* or *about* i.e. intentionality towards *the big picture.*

The philosopher and psychologist Franz Brentano, one of the most important predecessors of the school of Phenomenology, revived the term in the 19th century. Brentano claimed that intentionality is the defining distinction between the mental and the physical.

Intentionality implies a deep understanding of causality. Denying intentionality say in solitary confinement or forcing prisoners to dig then refill a hole for months destroys this psychological aspect of their humanity.

Preliminary definition of causation

Causality the relationship of cause and effect (for this e-book causality in the social arena is to be considered cp. for instance causation in sub atomic physics) include (1) a priori and a posteriori causality, (2) methods of a judging causality inc. for instance Causal Layered Analysis, (3) replicablility the basis of science, (4) linear and sequential or fractal and probabilistic, (5) timeline e.g. immediate causes or longer term ones stretching back say decades, (6) depth causation e.g. immediate events for causes for instance a car crash, or deeper forms of systems causation such as say the design of the car or road or even road rules etc.

For instance Aristotle distinguished four types of causes—efficient, final, material, and formal - which, may be illustrated by the following example: a statue is created by a sculptor (the efficient) who makes changes in marble (the material) in order to have a beautiful object (the final) with the characteristics of a statue (the formal). Later philosophers developed other classifications of causes, often duplicating Aristotle's. Immanuel Kant, considered the idea of cause as a fundamental category of understanding and a necessary condition for human experience; others argue a strictly mechanical theory of causality. This latter argument seems to hold a stronger sway today in design of educational systems.

Conceptualising Agency

Agency & Citizenship

"Agency is the idea that people are socially embedded in real relationships actively striving for purposeful self-determination, attempting to make sense of, as well as to initiate, influence and cope with events in line with their values, goals and expectations" as participating citizens in the body politic… Watts (1996) [adapted PW]

UK Whitehall (1990) Studies into Agency

In these studies called 'The Whitehall Studies' completed in the early 1990's wherein Professor Marmot and his colleagues followed the health of thousands of British civil servants for three decades and found health was directly related to sense of individual 'agency' a combination of personal sense of 'control over ones life' and achieving ones 'destiny' or potential which in turn was largely determined by socio-economic position. Standard allowances for health such as smoking, diet, exercise were found to account for only 1/4er of the variation in health – agency and it's related socio-economic position accounted for most of the rest.   Marmot and Wilkinson (1999).

Agency & Individual Differences

Reliable individual differences in level of action identification are dearly evident in specific action domains. As a rule, people vary in their level of personal agency in terms of the degree **of experience with a specific action**, in their **competence in, and confidence for, its instrumental performanc**e, and in **the degree to which they have been exposed to information** about that action and in their understanding the action's **higher-level implications**. These factors help to determine the individual's level of identification of that action, and because these factors may vary from action to action within the same individual, it is entirely possible for the individual to identify one action at a high level and another at a low level.

Agency & Structure

The structure | agency debate focused on the balance between the extent to which successful outcomes on innovations and other changes in society were the result of the way things are already organised (structure) or the result of individual choice and determination (agency). Here **structure** may be seen as the constitutive institutional arrangements, instrumental edicts, socio-cultural mores, governmental laws and regulations that focus, constrain, enhance, and enable individual agency and pre-distribute associated life chances. For instance based on the deliberations of some 10 futurists, involved in a futures discussion group in Brisbane in late 2003, concluded that, on average, over 80% of social causation to be from structural conditions rather than agency as individual choice.

Ontological and Ethnographic considerations

An Ontological Apologia

Lived Life has attributes of a balance between the individual and the commons, common/s sense and abstract rationality, practicality and reflectiveness, agency and structure. **Common Sense** of called the sense common by philosophers as far back as Aristotle and draws from the common parlance the context or sense in which 'we live work and have our being'. It is in effect an intervolution of several factors: (1) **sense cognition** from the five senses common to humans, (2) **common consciousness** (internal and external understanding please note common does not mean strictly uniform), (3) **shared** access to and active understanding of, a commonly held **Zeitgeist** inc. lived life and its underpinning philosophical beliefs, (4) **shared world view**/ontology, and (5) **consensability** i.e. hypotheses and arguments are articulated in a manner comprehensible, debatable and testable by others and to which they can ultimately give consent.

The latter would distinguish science (consensible) from art for instance. Further such attributes in my view underpin an ontology - the ontology of everyday life. Mao is reputedly said something like 'why worry about questions such as what is space and what is time when the masses solve those questions a thousand times a day'.   That is why worry exclusively about ontology in the abstract philosophic sense when we answer that each day in a thousand practical ways in the 'enfleshment' of the esoteric by our exoteric or mundane actions our ordinary lived life in our material/physiospheric world.

The view of this eBook maintains that this 'enfleshment' as enactment of the mundane is itself sublime that is we as humans are to be understood ontologically in our embodied grounded incarnation not in the abstraction, elegance and intricacy of our minds thought but rather in the viscerality, sauvage groundedness and liberationality of our bodies actions. The former is to be used as a lens for the latter - both are necessary the first is the prima

mobile (first movement), while 'enfleshment' as a threefold meaning of (1) a lived life thread, (2) a consciousness thread and, (3) a creative enactment thread.

This to me is, in many ways, the Artificers, even Pre Historical and Post Modern Historical ontology, a grounded ontology where thinking is lensed through doing, the noosphere through the physiosphere not vice versa. Certainly ones 'lived life' certainly acts as the basis for many what may be called personal ontological development programs. Affirmations such as 'I accept myself as I am now' and 'I cant be where I need to be unless I start where I am' all take as axiomatic and as the prima mobile the centrality of ones lived life.

Neither Lived Life nor Common Sense have an easy or rigorous definition, however like 'family' or 'friend', which also cant be 'defined', the are nonetheless very very 'real'. Certainly both terms are not continuous, for instance if one was severely disabled or brought up in an indigenous, minority or violent household, country or religion ones ethnographic lived life ground for building ones future world view would be directly affected though not necessarily for the better. Notwithstanding this, such a 'lived life' matters and has its reality and calls for recognition by the individual and society. This lived life and can still, and indeed needs to, provide access to learning insights, personal development and an unremitting commitment to social justice and artificer enactments through exemplar projects towards a better world for these lived life folk for instance.

Essential Economics - Oikonomia cp. Chrematistics

In all these instances male and female are included. This book takes the view that all are examples of oikonomia and oikonomia involves male and female. Wildman (1993), (1997:Vol2: App 7 pgs 64-74).

Oikonomia - economics as if people and Gaia mattered

Oikonomia means home economics in the sense of the ancient Greek meaning of prudential household/community management through the production and distribution of 'real' goods and services for the support of everyday life inc. domestic and home management arts. Here we have the origins of the grounded, 'real', home based or community economy, even if I may the sauvage economy. In my work this is called CED - Community Economic Development and can also be called 'Oikonomic' Development. Economics may be defined as the production, sale and distribution of goods and services for everyday life.

Here the 'real' economy of goods and services is prime not its subsequent monetary flows however this Oikonomic definition of economics has become seen as quaint, localist and anti liberal and anti-market and anti-globalisation and has been attacked by the massive institutions of the stateless capital through 'restructuring' loans to third world countries and so forth. We have over the past to decades nothing less than a global war by Chrematistics against Oikonomia and let me assure you Chrematistics won.

Today we have no international institutions concerned with Oikonomia this is left the horrifyingly decrepit Nation State.

Chrematistics - economics as if only dollars and interest rates mattered

Aristotle 400BC identified Oikonomia some 2500 years ago and contrasted this with **Chrematistics** – love money in identifying two types of economics.
Clearly once one separates the 'monetarised' economy from the 'real' economy i.e. separate chrematistics from oikonomia then the former can leave the latter to languish whereas the latter needs the former to varying extents to enable transactions from barter to

conventional exchange to occur. We see inordinate focus on same today in concepts such as 'money supply', Central Bank, monetary theory e.g. Friedman et al, World Bank, IMF, futures derivatives and so forth - here is the money economy first and the physical economy last every time. Capital is now free of National constraints and the worlds financial economy is around 30 times (and increasing) that of the Oikonomic economy. Often monetarism has been little more than a guise for using free market liberalism as a strategy for conventional globalism - giving us Gaia in crisis the eco-disaster we see before us today.

Today economics is managed first from the monetary perspective and if one can get the money supply 'levers' right e.g. interest rates etc. one can thereby control/strangle/resuscitate the physical economy.

The Artificer Economy as an example of Oikonomia

This eBook contends that the four principles of the Artificer/Bush mechanic strongly synergise with 'oikonomia' or community economy and that this forward to our Artificer Economy and backward to a Neolithic Economy and as in the Ouroboros symbol the two link. Authors who have amply covered the topic include for instance Daly, H. and Cobb (1989), Gary MacLeod (1991) did a good video documentary series on CED in Canada in the early 1990's and in the past few years localism is springing up everywhere even in ecological groups. Over the past decade and a half I have written extensively on such a community economy under the term Community Economic Development, having published some 20 articles, booklets and contributed chapters on the topic.
 These linkages are outlined in the following table:
Readers Note: Please note in today's economy with a world of 7 billion people I am not suggesting that some rustic village economics is the answer to today's global eco-crisis (etymologically economy comes from the same Greek root as ecology - ecos). I am saying however that to the extent that one endorses economic localism as a (not 'the') way forward - an artificer economy, for instance, becomes part of the answer, whereas today it is seen very much as a key attribute of the problem - one to be rooted and restructured out.

Table 24: Attributes of an Oikonomia/Artificer Economy cp. a Chrematistics/ Corporatas Economy

Artificer Principle	Oikonomia Economy (OEc) Principle [Homo Communitas]	Chrematistics Economy (CEc) Principle	Corporation Economy (CEc) [Homo Corporatas]
Exemplar Project	Real economy of Goods and services	Consumerism	Global Corporation (considered legally as a living human)
Social Holon	Mutual Aid - heterotechnic co-operation	Profit Motive	Corporate Elite
Global Problematique	Self-sufficiency, eNuffering & sustainability - the economic as econosphere fits within sociosphere which in turn fits within the biosphere	Economic Imperative - economic transcendent over social	Corporate Profit
Action Learning	Mentoring and Mimesis	CBT - operant conditioning	Training
Energy	Ying - nurturing	Yang - controlling	Hyper Yang - owning
Economic Axis Mundi	Home Economy	Financial Economy	Corporate Economy

Source: P Wildman 01-2008. Also Wildman (1999) where I explore the difference between Communitas & Corporatas.

It is my contention that this is why we find many encouragements of a basic co-operative approach to economics and so many explicit pronouncements against usury in many modern day religions e.g. in Christianity and Islam. And further that this is actually an early historical recognition of a prehistoric even Neolithic realisation for instance in Stone Age Economics [Sahlins (1972)], pre-fall economics [Taylor (2005)], Australian Aboriginal Economics [Dingle (1988), and Lawlor (1991)] by the Savage Mind [read sauvage - Levi-Strauss (1996)] that the latter i.e. Chrematistics needs regulation. So in this sense we can see Homo Dextera as Homo Neolithic as emergent Homo Artificer Sapiens a lost species almost, and Homo Chrematistics emergent as Homo Corporatas Sapiens.

Enter the Artificer Communitas as an example of an sauvage Oikonomia Ontology cp. a globalised Corporatas Ontology

It may be that further research can make the claim that there is (as in some sauvage indigenous communities), was (as in Neolithic and Palaeolithic tribes and communities) and could be (as in intentional communities such as eco-villages seeking to counterpoint globalism) such as thing as an oikonomia ontology as indeed there is a very much a corporatas economy (globalised capitalism) identify these key attributes as actually representing the basics of an ontology, an artificer ontology. Indeed one of the principal critiques I have of so called eco-villages is that they have no economic heart that is any different to the status quo they are at best simply upper class status quo suburbs. Most don't have a conscious ontology however some may have ecos in their ontology however it is not ecos as in economics as in oikonomia.

Ontological Anthropology

Key attributes of an ontology would include it being able to locate one in the cosmos, locate one with 'like' others, actually establish beneficial constructs, and learn from ones mistakes and successes. These are in fact the four 'grounded' principles of the Artificer or Bush Mechanic. In this sense they may possibly be seen as shards i.e. like an ancient broken glass jar where the original no longer exists today but in a few broken seemingly unrelated shards, rediscovered as it were through Grounded Research into the existing remanents of this ethno-sociological remanent or niche of the Bush Mechanic. Yet they do relate they do point to an ontology, a voice, a way of being a human being, relatively

recently silenced in the clang of the cogs of machinery, explosions of the dogs of war and the ring of globalised cash registers.

Wildman Warnings: Modern day outcomes of global instability through the Corporate Economy overpowering the Sauvage or Home Economy

Furthermore today we see the two economies moving further and further away from one another with the CEc now about 30 times the size globally of the OEc. In addition in Australia the formal and informal (outside the cash nexus or outside formally recognised national currency denominated exchanges) economies are seen to be about the same size, where as in Africa for instance they are 1/3rd and 2/3^{rds} respectively.

Over the past decade I have been issuing what amounts to **meta strategic watching briefs** or so called 'Wildman warnings' about these impending doomsday anticipations - noting Economics as the dismal science - and of course the crash has not happened the Sauvage Economy is still severely retarded if evident at all. And the paper boys triumph. Indeed this entire tome may be considered a fulsome Wildman Warning that explicates the philosophic background on which the WW's rest. Nevertheless I simply cant resist the temptation even need to (re)**highlight some of the implications** of the switch from a OEc to a CEc.

Since the days of Breton Woods agreement of 1944 with the establishment of the IMF, World Bank and more recently (early 90's) the WTO as globalisation gained sway, currencies everywhere have been deregulated which, also includes being broken from the Gold Standard. This was the last vestige of OEc in that Gold is at once an economic (used in manufacturing) and aesethics (used in jewellery) substance it is a crossover substance. Taking the economic factors of production of land, labour, capital, raw materials and technology, these are ingredients that in different ratios make up the economic recipes that we see today as our cars, boats, houses and hospitals etc.   Nowadays the Nation State has lost control of basically all but labour and as the internationalisation of the CEc continues apace the Nation State originally formed in the 1648 Treaty of Westphalia, to protect its people and help ensure a living OEc the **CEc strengthens and the Nation State fades** into impotent incompetence.

Yet everywhere in the 'so called' developed world the Nation State supports CEc trough globalisation, World Trade Organisation support, and labour market and training reform agendas and so forth. In this sense the Nation State is simply shooting itself in the foot and not before time but wait there is nothing globally to take its place other than homo horribilis viz. homo corporatas. The UNUnited Nations means in many ways ununited nations. Whereas **OEc** if undertaken with care and enlightenment can mean at least some sort of constructive future for the Nation State or at least give it **some prospect of discharging its historic duty to its people qua** citizens not qua consumers.

By breaking the gold standard by the early 1990's the CEc and OEc had been separated, the umbilical cord snipped and CEc moved further and further away from OEc both in terms of scale and credibility and valorisation. We see this move over the generation from the mid 1970's to the late 1990's as outlined below. Equally as disturbing is that **Nation States** ever the source of misery and incompetence to their inhabitants **can no longer control the**

international flow of capital so at best they can influence the 3% of foreign exchange transactions that are OEc based not the 97% that are CEc based.

Disturbingly **CEc/currency traders can now effectively 'police' governments** by selling off a Nation's currency when they are dissatisfied with that government's policies. If enough traders act together, the value of a currency can plummet, creating a 'currency crisis'. These sudden large sell-offs are usually viewed and responded to by governments as 'attacks' on the value of their currencies. And a CEc induced currency devaluation can now happen instantaneously a very short time, days or even hours, because of the new global communications system. And this points directly to a second consequence of hyper CEc: a growing interest in market instability because that is where one finds the opportunity for windfall profits. Big fluctuations in the values of currencies allow for big profits to be made by trading them.

The only precedent Bernard Lietaer (1997) identifies is the collapse of the Roman monetary system. In the 1929 crash, the monetary system held. We had all kinds of other problems - unemployment, stock market crashes, currency inflation in Germany - but there was a gold standard that held. Today, we have no gold standard to fall back on. So there is no precedent for a collapse of this nature. And this would be a truly global phenomenon. All currencies in the world are based on the dollar. So if you have a crisis on the dollar, you pull out the linchpin and... puff …and the pack of cards collapses, herald the upcoming **CEc induced international financial meltdown**.

In 1975, about 80% of foreign exchange transactions (where one national currency is exchanged for another) were to conduct business in the real economy i.e. the OEc. For instance, currencies change hands to import oil, export cars, buy corporations, invest in portfolios, or build factories. Real transactions actually produce or trade goods and services. The remaining 20% of transactions in 1975 were speculative, which means that the sole purpose was an expected profit from buying and selling currencies themselves, based on their changing values. So, even in the days when the real economy was dominant, some currency speculation was going on. There had always been that little bit of frosting on the cake.

Today, the real economy in foreign exchange transactions is down to 2.5% and 97.5% is now speculative. What had been the frosting has become the cake. The real economy has become just a small percentage of total financial currency activity. One estimate by Berneard Lietaer (1997) is that in 1997 we will had close to $2 trillion in currencies being traded per day. This is equivalent to the entire annual gross domestic product (GDP) volume of the United States being turned over via currency trading every three days. Lietaer (1997) see also http://www.twnside.org.sg/title/nar-cn.htm

Further by the late 1990's we see the proliferation of financial intermediaries systems which is basically CEc trading with CEc type script. For example **collaterisation of first bank then national economic liabilities**, such as high risk mortgages or credit card liabilities, and their being sold to a Non Bank Financial Intermediary (NBFI) such as international merchant bank or credit collection agency this **allows the banks** to move the liabilities on its bank sheet from current to non current and long term and in some instances actually **not to need to show them as liabilities** at all. Here we have the smoke and mirror horrors foreseen or at least anticipated by our Stone Age ancestors, even more concerning we see the harbinger of a complete financial meltdown different in nature, and indeed far worse than the 1930's depression were OEc was still profoundly dominant.

CEc means - money means everything: Money finally trumped techne a centuries ago - now its all there is in the formal economy at last 97% of it that is. Here we see the

movement from seeing money as a store of wealth to money as a denominator of wealth itself. Indeed indigenous communities often don't have money in the modern sense nor do they have a discrete economic system it is merged in with the ceremonial system which in turn bleeds into the kinship and cosmological systems. Modernity has separated out rationality and economic rationality as triumphed over all other considerations of the social and the ecological and economics has broken with its etymological roots with ecology to now own it or at best see ecology as an 'externality' to its cost benefit analyses.

Sneakback ~ OEc invading CEc? - a little: Through local currencies OEc is restaging a small comeback as federal dollars are increasingly rationed through a literally out of touch banking system various community currencies tied directly to a OEc standard e.g. hour of service or some other exchange standard have over the past 20 years come into existence. This is attempting to make the 50% of intra-local/Nation State transactions that are related to the informal economy more under the control of local communities.

CEc means - volume first service last: Another outcome of a Chrematistics first focus on economic development is logically to focus on the kernel of the transaction that is the transaction and only secondarily on the sides of the transaction that is the seller and the buyer linked by price and service. This almost invariably leads to the severe the discounting of service in place of price, as well as the stocking of lines that generate the majority of profit. Clearly any Artificer/home handyman/exemplar project/serious hobby type activities require exemplar service and broad stocking (part of deep service). The collapse of service especially in large corporations is documented in [See Chapt 7: BMP1 on exemplar service and deep service for further details].

CEc means - profit first quality jobs last: Yet another outcome is the search for any areas of difference in economic potential. In this regard cheaper wage rates always attract the chrematistic capitalist as she can harness this by producing in China or Indonesia at 1/20th the wage and selling a discounted prince in Australia or the US for instance. This in Japan is called the long hollowing. [See Appendix B - Impact of Globalisation, for further details]

With out the bushy economy writ large we all perish!!! [See Appendix C and the section on Economic Pole Inversion]

Ontology in the Structure | Agency balance

Two key attributes of ontology are consideration of the essence of the world and our role therein i.e. Structure | Agency. When explored over time we have a long-term or macro version of history called macrohistory. So macrohistories may be seen as forms of ontologies. This is outlined in the following table.

Table 25: Macrohistorical perspectives on Structure as World Essence and Agency as Humanity's role therein

Example – by PW	World Essence [Structure]	Humanity's role/influence therein [Agency]	Ontology
1. Entrepreneurs	✓	✓	The world/structure is good and humanity can make it better (esp. for me)
2. Hinduism	✓	X	The world/structure is good but goes by itself and humanity cannot affect it
3. Christianity	X	✓	The world/structure is bad but humanity can make it better
4. Many youth today	X	X	The world/structure is bad and humanity (youth) can't do anything about it (prisoners dilemma)

Source: P Wildman based on work by Inayatullah (2002:186)

Indic view of Agency

Direct quote on Indic/Hinduism relevant to Social Innovation:

In Hinduism …..there is an essential affirmation of the cosmic order as divine. Thus there is no tolerance of human freedom or invention in the social field, for society is not conceived to be an order evolved by human beings subject to intelligence and change, it as it was in advanced Greece and Rome and as it has in the modern West. Its laws are of nature, not to be voted on, improved upon or devised. The Greek or Renaissance idea of [individual agency] the great individual simply does not, and in many ways cannot, exist within the pale of the Indic system. Inayatullah (2002:132) [adapted PW]

From Ontology to Epistemology

As seen in the previous section Western ontologies in some ways may be seen to be 'host positive' to artificer energies now we seek to 'drill down' into several of these ontologies. A n important aspect of ontology is epistemology or theory of knowledge so now we can turn briefly to examine the conventional Western philosophic traditions and their view of 'T'ruth. Enter the Artificer's ontology which offers a base for fundamental reorientation of pedagogy and teaching.

Table 26: The nature of Truth in relation to causation

Philosophical Traditions	View of Truth	Potential for Artificer & Social Innovation causation
Empirical	Truth as 'T'ruth	✓ (to a point)
Hermeneutical	Truth as 't'ruths (layers of meaning)	low
Critical	Truth through dialectical tension with is opposite	Minimal
Actional	Truth as poiesis (making & shaping a better world)	✓
Devotional (Indic)	Truth as entering cosmic consciousness – moving the whole towards the ideal	X

Source: P Wildman (2003)

Observation: The actional ie. action and action/experiential learning seem the best focus for the learning dimension for the artificer/social innovation.

Should we hope for the Nobel saviour?

As an aside it is usual in the Nobel for the theorists to receive the prize not the experimentalists/lab artificers who prove or disprove the theory. Even when the experimentalists disprove the theory the theoreticians still can be awarded a Nobel. Indeed thinking and doing remain as separated as ever. As was the case in the 1957 Nobel Prize for Physics. Furthermore Wertheim (1997:226) argues it is of note that the lead experimentalist was a woman and an Asian (Chien-Shiung Wu).

Would we expect anything different? It still seems as if the scientific community has kept faith the patrist Nobel Prize, most in the social sciences and web'ers have long since bypassed such accolades, partly because there are simply no equivalents in the social sphere and partly because more knowledge than any expert already exists on the web. Indeed in the years from 1901 when the Nobel prize in Science (three categories: Physics, Chemistry, medicine) was initiated to 1995 only 9 (1.5%) of the 600 prizes went to women. Wertheim (1997:228)

Wertheim (1997:235) argues that the difficulty women have had in gaining the ability to interpret the book of Nature is paralleled by the difficulty they have experienced in gaining a place to interpret the Book of Scripture i.e. becoming clergy in the Christian church.

Today some 60 years on and after the triumph of quantum theory of the 1940's and 1950's and fractal geometry and chaos theory of the 1980's and 1990's and now hyperspace theory

of the 2000's I would like to posit Einstein's saying from 'God casts the die not the dice', as 'God, Dancing casts the Die not the Dice – so that the idea of a certain level of indeterminacy (dance steps are indicative not prescriptive) and heuristic cp. algorithm (a dance i.e. a 'mathemagical' or 'mythomatical' heuristic decision tree rather than 'mathe'mechanical' production line) is in bedded in our cosmic aphorism.

The question remains, and so it should, is god dancing alone, with us or with science, and does God dance with a flower, hammer or calculator in hand? And more to the point whose leading? Me thinks that in this instance God may well be taking the yin role of the goddess as in Neolithic times, whereas on planet earth science is taking the yang role and rewarding its own with Noble prizes and so forth. On this basis it may well not be all that wise to wait for the Nobel saviour, rather a DIY (Do It Yourself) or DIO (Do It Ourselves) may well be the way - creative enactment.

Finally an Ontology of Ingenuity

Ingenuity may be seen for the purposes of this eBook as the unification of consciousness with the life impulse which in turn leads to action embodied in the Exemplar Project. Artifice then is this whole process which, is the theme of this eBook and may be called 'the artifice of ingenuity'. Ingenuity applied to answering practically the question 'how then should we live together today in order for a better world tomorrow for our children?' Another take on this life challenge is that 'the main problem in the world today is the lack of wise use of ideas'. Here we see the Exemplar as service to this end.

All of us are in different ways abled and disabled these are some of them. Whether we have an approach to social science that requires us to be objective and rigorous or a more ethnographic one that draws from the lived life i.e. culture of the people we are all still as researchers differently abled and disabled and our methodologies all likewise are differently abled and disabled. For me it is more a questions of integrity and authenticity and perspective than it is about an abstract sense of Truth i.e. is more about 't' than 'T' truth. An ontology not relative and yet not absolute, ancient yet post modern, almost an 'either and' as in diversity within common intent.

An ontology of ingenuity.

Please note: many of the following words are neologisms, coined in an attempt to: (1) reduce the 'splodgyness' of many existing words in that their meaning is so broad it can be 'adjusted' to mean whatever one requires and that the options to do this are so broad that the word looses focus; (2) sift word meanings that have been in-freighted with the sedimentations of the past; and (3) introduce new words where the existing ones have become so sedimented and politicised as to in some instance become the reverse to the pejorative of their original intent and now oppress what they were originally coined to liberate. In the following 'definitions' I have sought to indicate the primary meanings of these 'splodgy' words for the purposes of this e-book.

Further these words represent a choice from all those that could have been included. In this sense the lexicon is not a dictionary. Rather it is aimed at explicating new terms and existing terms used in specific ways. These are the words listed below.

Actught - the integration and non separation of **act**ion and tho**ught** with the balance falling to action

Aesethics - ethical aesthetics

Agency
1. **The condition of being in action; operation, efficaciously exerting power instrumentally.**
2. **The means or mode of acting; instrumentality.**
3. Acting on behalf of another
4. A Government Agency

Artifitect the artificer equivalent of an architect that is one who designs yet also builds

Artificate the artifice equivalent of numerate or literate

Artificeosphere the space in which artificing occurs a retroductive one of holonic-interface, between mentation, orchestration and implementation. Clearly this is the 'sphere' of the lived life and has interactions as does our life worlds with the bio'sphere, physio'sphere and noo'sphere. See technesphere.

Artificeial | Artificerial - as in the archaic meaning of Artificial - (see 'Inversions' entry below) even in the late 1600's artificial meant full of artifice full of skill, full of know how, full of techne. Indeed one sought to live ones life artificially

Artificer - represents the modernity equivalent of the Bush Mechanic or the bushy barbecued so to speak. In terms of this eBook the two terms are equivalent. The vernacular **Bush Mechanic** as used in this eBook is one who practices Artificer Learning as defined below. **Post-Post-Modern Artificer** then represents the attempts to recover from the scorched earth policies of Modernity and thereby extends the **Traditional Artificer** concept to the use of ultra modern manufacturing techniques, tools and methods in the traditional custom-build 'human touch' 'high tech ~ high touch' way that blends techne and technology. **It is this enhanced sense in which Artificer is used in this eBook**. [Artificer can also be applied viz. Artificer as in: (1) Bush Mechanic - primarily the focus of this eBook (2) eNuffer (someone who practices 'enough is enough' in limiting ones consumption and increasing ones self reliance and household production

'prosumerism') and (3) Elder (someone who acts ahead wisely) - it is the former no. (1) sense that Artificer is used in this eBook - see the Appendix F on Zen and the Artifice of Ingenuity, for further discussion of this extension of the Artificer. Further Artificer energy is considered in this eBook as an underlying human energy indeed even a basic human right as in 'the will/urge to Artificer'. This urge may be seen to have an esoteric interface through the Demiurgic field discussed elsewhere in this eBook. In all instances the **Will To Artifice** WTA blends Thinking and Doing. Finally the Artificer is the Yang and Exemplar Systems Development is the Yin or the other side of the coin]

Artificer Learning - is *an action learning process whereby someone applies their ingenuity and technical knowledge to improvise unique solutions viz. the exemplar project, to field challenges aimed at addressing big picture issues in ways that integrate various expertise areas, design and operational applications towards efficacious outcomes.* There are various 'types' of AL (1) conventional via. for instance the plumber also becoming an electrician and also builder in the conventional TAFE competency based training format (in reality this synthetic process doesn't exist unless it is undertaken by a particularly committed individual, (2) Bush Mechanic - generally an autodidact - as is the focus of this e-book. (3) Indigenous Village Learning System - IVLS - generally is (a) generalist↔specialist in format, (b) linked to the production of day to day goods and services and to the ceremonial life of the tribe/village; and (c) is integrated vertically whereby kids and adults learn together. In this e-book however artificer and artificer learning is treated as synonymously with is primary meaning herein, i.e. the Bush Mechanic (learning).

Artefact something made by humans through techne, for future practical use, nowadays this word over the past 250 years since the industrial revolution e.g. since 1750, has also gone through an inversion associated with the artificer also has suffered a serious etymological declension and today means something that is a throwaway made by a machine - a mere artefact - a mere spin-off from science - something of little or no value. Indeed some would argue the ultimate artefact is the environment, Gaia herself, certainly within this management commodification of the environment the human being becomes an artefact, an artefact of the technology that centuries ago he created. The artefact is part of a harmonious relationship between the humans and the encompassing Gaia.
Artofact something made for humans through technology

Artefract/Artefractual - a motley - something made by humans with fractal geometry and without the use of the de rigueur consistency 'straight line methodologies', e.g. stone axe, Chartres Cathedral, Stonehenge constructed over a millennia from 3-2000BC, Newgrange Ireland 3200BC [http://www.knowth.com/new-grange.htm], pyramids circa. 2500BC [http://en.wikipedia.org/wiki/Egyptian_pyramids].

Artilect also Technelect - forms of AAI - so called Artificer Artificial Intelligence - where Techne becomes intelligent and ultimately conscious. This represents an alternative path in the tool development to the present one whereby the human and agentic elements are wherever possible all but eliminated from technology thus reducing the human to consumer. Computer games go some way in this direction. [discussed in Ch 13 & App. I]

Artesophy - the philosophy from artifice; hopefully to be seen as a subset of ecosophy.

Autonomy - Generally associated with expertise or at least professionalism again the last gasp of the artificer. Relates to the ability of the position or professional to follow their own heuristic make decisions at the coal face rather than follow a prescribed algorithm

Autopoiesis (self organisation at the molecular level which is co-determinate of and in living systems) In autopoiesis it is the whole organism that is conceived as reaching equilibrium, but with reference to the whole organism and its broader environment as a holon, not uniquely its subsystems (digestion, respiration, elimination etc). In this way it has relation to gestalt psychology and psychotherapy as well as Lovelock's work (Gaia).

Bioneer - someone, such as an Artificer who works for practical and innovative solutions to environmental and social problems based in a philosophy which recognizes the aliveness, interdependence, and intelligence of the natural world. Bioneers are very concerned about an emergent global phenomena they call the **Nature Deficit Disorder** (NDD) which afflicts almost all children in the developed world - don't go outside there's dirt and germs etc. I suggest this is almost a cultural meme - doing is dirty - thinking is clean….. And that's the heart of this eBook.

Biosphere - see Physiosphere.

Bricoleur - a tinkerer someone who 'invents' things from available bits and pieces, an counterpoint of engineering. Someone comfortable in unfamiliar realms of learning and experience who tires things out until they figure out how to do or make something (a)new. More recently the term has been applied to qualitative researchers who 'mix and match' methodologies to create a unique research design which fits the research situation rather than the other way round. An approximate English counterpart is D-I-Y so in this sense it is very similar to Artificer however the latter also has the sense of beyond the artisan. Nevertheless both are able to stand aside from their 'intellectual ballast' or the 'cataracts of accepted beliefs and standards'. Further both can 'develop a glitch in the system and stand in this 'negative' space to allow 'ground reversal' and thereby see how to make it positive, and of being able to prevent the power of conception over perception. In his book *The Savage Mind'* (1962, English translation 1966), French anthropologist Claude Lévi-Strauss used the word **bricolage** to describe the characteristic patterns of mythological thought.

Bush Mechanic/Artificer in the narrow sense is *'someone who uses their ingenuity and technical knowledge to improvise unique solutions to field challenges'.*

Bush Mechanic/Artificer in the broader and deeper sense is in a sense a pre-fall concept and as used in this book is *'an adult learner who is broadly and deeply technically skilled both in a participative and reflexively orientated manners with normative (ethically) and instrumental (technical-strategic) capabilities and who seeks to address key dimensions of the global problematique through prototypes by prioritisation, choice, design and implementation all aimed at acting ahead wisely towards a world transformed.*

Further (1) Artificer or Bush Mechanic in this sense in this eBook is used more as a decision making and action taking heuristic in a post-knowledge age economy than as a mechanistic algorithm in an industrial age economy' and (2) Here we ask and answer the questions 'Where is the wisdom lost in knowledge? And; where is the knowledge lost in information?' So the artificer is an expression of ageless human wisdom about acting ahead wisely in a post knowledge economy, rather than a gadget driven tech head nurd of today's instant fix generation or a back to Eden type effort to reclaim our lost pre-industrial age of innocence. Wildman (2004c:1) updated Wildman (2007) - this document.

Causality the relationship of cause and effect (for this book causality in the social arena is to be considered cp. for instance causation in sub atomic physics) include (1) a priori and a posteriori causality, (2) methods of a judging causality inc. for instance Causal Layered

Analysis, (3) replicablility the basis of science, (4) linear and sequential or fractal and probabilistic, (5) timeline e.g. immediate causes or longer term ones stretching back say decades, (6) depth causation e.g. immediate events for causes for instance a car crash, or deeper forms of systems causation such as say the design of the car or road or even road rules etc.

For instance Aristotle distinguished four types of causes—efficient, final, material, and formal - which, may be illustrated by the following example: a statue is created by a sculptor (the efficient) who makes changes in marble (the material) in order to have a beautiful object (the final) with the characteristics of a statue (the formal). Later philosophers developed other classifications of causes, often duplicating Aristotle's. Immanuel Kant, considered the idea of cause as a fundamental category of understanding and a necessary condition for human experience; others argue a strictly mechanical theory of causality. This latter argument seems to hold a stronger sway today in design of educational systems.

Consubstantial - drawn from the same essence although different in appearance e.g. male and female e.g. marriage is consubstantial. One needs to accept that the modern day duality of thinking and doing are actually consubstantial and derive from a background ontology of their integration. This ontology has been bypassed in modern times and at best is seen as primitive. It was strong even to the 1300's and today survives in pockets of indigenous peoples and in a few isolated bush mechanics. Thinking and Doing are then **consummated** (brought to a situation of fulfilment), in the exemplar project i.e. the consubstantial is then consummated in the exemplar project.

Craft Labour - the 21st century term for skilled trades based labour now about $100per hour in Australia this prevents their use on innovatory programs and leads to this type of labour being replaced through mechanisation and unskilled assembly for instance.

Creactivate - actively create - artificate - move creativity from noosphere to physiosphere. One creactive method is Heuristic Inquiry. Artificers are all involved in creactivating towards a practical big question solution.

Ecosism - the practice of Ecosophy practicable ways to challenge/artifice responses to the four key dangerous presuppositions in the Preservation and Resourcist Ecology Movements [Protectionism (PEM), Resourcism (REM)]: (1PEM) the current system of ecosystem protection through the exclusion of humans perpetuates an implicit dichotomy or duality between humans and the rest of the natural world even to the extent of continuing the anthropocentric view that these 'nature reserves' (more as 'bio museums of temporary diversity', indeed some authors viz. Bell (1995:89) extend Foucault's analysis of prisons to schools, hospitals to include these nature reserves - co-opting nature in our larger anthropocentric plan that does not include limiting our consumptive prowess) have to be 'managed' and (2PEM) excludes the importance of bon vitae i.e. the joy of life i.e. self-realisation (3PEM) while ethnocentrically ignoring the balance that indigenous peoples have achieved, even artificed, within their ecosystems, while (1REM) accepting the counterpoint critique of the utilitarians (resourcists) that nothing is of value unless it is useful to man, and (4REM&PEM) misunderstanding the dynamically balanced change inherent in even supposedly 'stable' eco-systems. Clearly (3) and to a lesser extent (2) and (1) involves artificing.

Eco-technical Systems (ETS) are a crucial part of **Exemplar Systems Development (ESD)**. Here systems are technological and social and environmental an enviro-socio-technical ecology (after Emery's (1993) socio-technical systems) as it were or eco-technical for short or in terms of this eBook from technical to technecial to eco-technecial

and possibly to tecohnecial!! Many commentators would see the Artificer as a socio-technical construct however Artificing also includes the biosphere via. gardening - this extension and deepening is unescapable. The noosphere and physiosphere and sociosphere and biosphere here are concentric with the latter incorporating the rest.   ETS and ESD may be seen in part as an Ecosist response to the Preservation and Resourcist Ecology Movements [Protectionism (PEM), Resourcism (REM)].

Ecosophy - a philosophy of place (eco) wisdom (sophy from Sophia Greek goddess of wisdom). Ecosophy is thus about ecological harmony or equilibrium. It is a neologism coined by Arne Naess in 1973 from a contraction of the terms ecological philosophy. The ecosophy or 'ecological wisdom' of indigenous groups varies from that of groups considered modern and industrialized because of epistemological differences. Different ecosophies shape different modes of interacting with the environment.

The **native or wild ecosophy** or 'ecology in mind' (indigenous) or 'ecology of mind' (western) tends to blend the cultural, biological and natural world and cultivate the relationships between them. Their way of viewing and understanding the world is shaped by these relationships of reciprocity where the natural incorporates the human and must be respected and sometimes even feared. A common way to promote sustainability in this ecosophy is through discouraging 'offences' against natural resource-spirits. This leads to techneology.

The **modern ecosophy** has two foci:
(1) is based on a critique the idea of resource exploitation as the only productive way to interact with nature. Where indigenous peoples would see the natural world as something they are a part of and something that is part of them, Westerners generally see view resources as something they have an inherent right to own and harvest. Modern societies divide the cultural and spiritual realms from the natural and the rift between the divisions is filled by new values such as individualism, materialism, and progress.   This leads to technology and is the approach used by many 'deep ecology' movements.

(2) Ecosophy can be considered a third dimension to economics, (1) prudential household management *oikonomia* (2) love of money *chrematistics* and (3) *ecosophy* as linked to eco-technical systems (above). These terms are often appropriated somewhat understandably by deep ecology, however it's meaning also includes this third dimension to economics that is Eco-as household which gives us eco in economics and nomia which gives us management can transition to eco-sophy after Sophia the Greek goddess of wisdom i.e. household wisdom.

Ecosophy in this e-book uses this second dimension while acknowledging the two dimensions overlap. Gift economy is one expression of this economic wisdom, wise acting economy or Love economy. It is one of a mutual aid gift economy with 100% recycling. It is not one where commercialisation and profit trump all else but rather mutual aid self help and love trump commercialisation which continues as a subset of the gift economy so that we can help other folk i.e. selling just tea to help others overseas in poverty. [the two dimensions of economics are oikonomia (from which comes our English word 'economics' and means 'prudential household management' and chrematistics (love of money) - ecosophy in this second sense draws from the second dimension]

↔Interface ↔Interdependency↔Web of life↔neg entropy↔Common good↔Ecosophy ↔peace and prosperity for all ↔Right livelihood for all (l)earning↔ Creactiviating↔ Love economy y/l/earning ↔Artificing (WMC – Weapons of Mass Construction)↔ Exemplar projects↔Interface↔

Education - the pedagogical noospheric counterpart to learning in that it is strongly associated with technical or techni cp. techne skills. Here the learner is embedded in power over top down power system that renders him or her powerless. Course content i.e. 'curriculum' is set by bureaucratic 'experts' with no input from citizens or parents or students. Outcomes are often seen as 'outputs' and measured behaviourally in terms of competence. Critical, reflective, reactive and synthesis skills are seldom if ever 'taught'. Information transfer is seen as one way from 'sage on stage' to absorbent obedient 'student' in a 'classroom'. Generally educators value 'higher' education i.e. noospheric or conceptual or theoretical education as profoundly superior to 'vocational' education i.e. Technical and Further Education.

eNuffer - a person who practices 'enough is enough' in controlling and reducing their material needs and wants. Someone who produces basic needs such as food and repairs rather than recycles in effect a prosumer.

Epistemology [52]- the nature of knowledge which in turn may be seen as 'warranted assertion'. I do not think we can know anything with any 'absolute' degree of certainty. Indeed it is reported that in 530BC Xenophanes wrote that 'the final truth...is but a woven web of guesses'. The critical issue in relation to epistemology in relation to this e-book is - is knowledge wholly cognitive? Conventional conceptualisations, like those for intelligence, reply with an emphatic 'yes' and extend this and say not only cognitive but also textual. Yet Neolithic epistem was not textual (as there was no written language) yet there was extensive knowledge of maths, astronomy, engineering, medicine, farming, animal husbandry, governance, equality of the sexes and so forth. In terms of this e-book one can ask 'can mimesis be a form of knowledge?', 'can visceral experiences be a form of knowledge', 'can art(ifice) be a form of knowledge?' It is the contention of this e-book that these are also forms of knowledge.

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[52] epistemology [Gr.,=knowledge or science], the branch of philosophy that is directed toward theories of the sources, nature, & limits of knowledge. Since the 17th century epistemology has been one of the fundamental themes of philosophers, who were necessarily obliged to coordinate the theory of knowledge with developing scientific thought. Réné Descartes & other philosophers (e.g., Baruch Spinoza, G. W. Leibniz, & Blaise Pascal) sought to retain the belief in the existence of innate (a priori) ideas together with an acceptance of the values of data & ideas derived from experience (a posteriori). This position was basically that of rationalism. [rationalism - Lat.=belonging to reason, in philosophy, a theory that holds that reason alone, unaided by experience, can arrive at basic truth regarding the world. Associated with rationalism is the doctrine of innate ideas & the method of logically deducing truths about the world from "self-evident" premises. Rationalism is opposed to empiricism on the question of the source of knowledge & the techniques for verification of knowledge. René Descartes, G. W. von Leibniz, & Baruch Spinoza all represent the rationalist position, & John Locke the empirical.]. Opposed to it later was empiricism, [empiricism [Gr.=experience], philosophical doctrine that all knowledge is derived from experience. For most empiricists, experience includes inner experience—reflection upon the mind & its operations—as well as sense perception. This position is opposed to rationalism in that it denies the existence of innate ideas. According to the empiricist, all ideas are derived from experience; therefore, knowledge of the physical world can be nothing more than a generalization from particular instances & can never reach more than a high degree of probability. Most empiricists recognize the existence of at least some a priori truths, e.g., those of mathematics & logic. John Stuart Mill was the first to treat even these as generalizations from experience. Empiricism has been the dominant but not the only tradition in British philosophy]notably as expounded by John Locke, David Hume, & John Stuart Mill, which denied the existence of innate ideas altogether. The impressive critical philosophy of Immanuel Kant had immense effects in an attempt to combine the two views. In later theories the split was reflected in idealism & materialism. The methods of perceiving, obtaining, & validating data derived from sense experience has been central to pragmatism, with the teachings of C. S. Peirce, William James, & John Dewey. Sir Karl Popper developed the view that scientific knowledge rests on hypotheses that, while they cannot be positively verified, can be proven false & have withstood repeated attempts to show that they are. Philosophers in the 20th cent. have criticised & revised the traditional view that knowledge is justified true belief. A springboard for their research has been the thesis that all knowledge is theory-laden. Woozley (1949). Source: http://www.reference.com/search?q=epistemology

Exemplar Project - drawing from the journeyman's piece or masterpiece of the artisan of the middle ages the exemplar project represents a project that meets the four principles of ESD and its practitioner the Artificer/Bush Mechanic. It represents a working concept/idea piece/project that demonstrates today that a better world is possible tomorrow for our children. Rather than continue to separate thinking and doing and pejoratise the latter an EP seeks concretely to demonstrate the artificer of human ingenuity individually or collectively.   In short it is a *seed deed not creed need*.

Expertise - the last refuge of the bushy techne yes - generic no in that Experitise is specialised knowledge about a particular filed know by and 'expert'. See Autonomy

Exemplar Systems Development (ESD) is 'the way' say of the I-Ching and Lao Tsu (604 BC - 531 BC) where systems are technological and social and environmental an enviro-socio-technical ecology (after Emery's (1993) socio-technical systems) as it were or eco-technical for short or in terms of this eBook from technical to technecial to eco-technecial and possibly to tecohnecial!! An example epitomising ESD is the exemplar project of the Artificer.

Intelligent Narrative Play an early childhood learning technique whereby a narrative is built by the learning facilitator around a play object (e.g. discovered or found on the way to the learning centre)m which is then used in intelligently directed narrative in play drawing from the lived life of the player/student that engages her performatively and figuratively in that she both performs the play and, is introjected into the play's adaptable discovery based learning context and content itself. Wildman P Q1 2007.

Intentionality may be seen as the activity of distilling proactive intention i.e. about the future into work today. It is used in the concept 'evolutionary intentionality or anticipatory pattern'. Intentionality is aboutness i.e. about something some event some phenomena.

The term was coined by the Scholastics in the Middle Ages, and derives from the Latin verb *intendo*, meaning to point (at) or aim (at) or extend (toward). Phenomena with intentionality point outside themselves, in effect, to something else: whatever they are *of* or *about* i.e. intentionality towards *the big picture*.

The philosopher and psychologist Franz Brentano, one of the most important predecessors of the school of Phenomenology, revived the term in the 19th century. Brentano claimed that intentionality is the defining distinction between the mental and the physical.

Intentionality implies a deep understanding of causality. Denying intentionality say in solitary confinement or forcing prisoners to dig then refill a hole for months destroys this psychological aspect of their humanity.

I=PAT - Human Impact (**I**) on the natural environment equals the product of population (**P**), affluence (**A**) (or per capita consumption) and technology (**T**)or impact of technology per unit of consumption. This describes how our growing population, affluence, and technology contribute toward our environmental impact. The equation is associated with Ehrlich, Holdren and Commoner in the early 1970's.

The equation aids in understanding the various factors affecting human impacts on the environment. The technology factor can be confusing, as technology can be used both to save resources, and to exploit them further. However, generally technology is used to harness energy and increases impacts (ie, cars, pesticides, etc.).

Ingenovuation - an ingenuous innovation a hallmark of the bushy/artificer

Interface - see Pattern Thinking also called Interface Thinking, Holonic Thinking and Systems Thinking - the boundary between two or more components, systems, functions, spaces or phases. Interface can be vertical i.e. sub components (nuts and bolts) in larger components (air induction system) in still larger components (engine) in a still larger machine (truck) operating say on a road transport system or horizontal where one part links to the next within various subsystems . Interface thinking is a way of focusing on the connections and patterns thereof rather than the objects. This has been called 'pattern thinking' and ultimately 'pattern law' in indigenous circles. And of course hybrids are interface entities, sometimes even living. Collective interface may be seen as the 'wuran' of the system (interface synergy even law - see pattern thinking). Genetic manipulation is an interface technology that will change the 'face' of our known world.

Kairos - Traditionally there is a concept of confluence, called kairos in Ancient Greek, when it is right to work as human action synergistically meets natural process which is developing according to its own rhythm - for instance fishing, where human actions need to be matched/interfaced with weather, tides and seasons. Kairos is an important part of 'techne', a sort of carpe diem of the 'singing' taskscape.

Knowledge - *justified true belief generated by learning*. Ultimately this can lead to wisdom. For the likes of Ingold the way into the various types of knowledge (I have identified some 10 types in various sometimes overlapping taxonomy's) is 'know-how'. In its broadest Jantsch'ian sense know-how or techne writ large is needed to answer the profound moral philosophical question '*how then should we live together today to demonstrate today that a better world is possible tomorrow for our global children?*' a counterpoint to today's dominant meme: *How much then can we consume individually, conspicuously and hedonistically today for our maximum personal social status tomorrow?*

Learning - is seen as closely allied with techne (inc. projects and play), indeed learning may be defined as '*consciousness expressed through wisdom*' or '*action generated by fun*'. Learning is seen as primarily as *enactive not cognitive* and thus includes as embodied in ones action awareness and understanding which in turn means learning is *embodied wisdom through right action and reflection*.

Lived Life - one's day to day lived life, the milieu of grounded experience of living, from, and to, which learning comes and is, and needs to be, anchored for it to be authentic - the mundane. It is at once both singular and plural, individual and collective.

Lived Life also has the benefit that it counterpoints the politician's penchant to deny, destroy and exploit anything civic and individual, except when elections are on. So that from the perspective of the lived life someone who experiences a tragedy, poverty, cancer, crime, gross public misconduct, looses a son in Iraq etc. simply can't be ignored, whether they are still alive or now dead. What happens at base level the lived life matters and has to matter all the way to the top and cant simply be elided in terms of 'public interest' or 'protecting the homeland' and other such clap trap. The case can't be elided for the class.

Further Lived Life can't exist without (at least mundane) action, which in turn requires agency, intention, imagination, perception, on the other hand the Cognitive Life, as a subset of the Lived Life, can exist without action.

Although not capable of neat definition it Lived Life remains a powerful concept. Like words such as 'family', 'community', 'freedom', 'voice', 'values' can be seen as unstable 'splodge words' and so are all but unusable to the moral philosopher, however when used with authenticity they remain critically important as forcing a focus on the grounded

experience of our everyday world and our lives therein. This sociological concept forms an important part of the e-book.

Sometimes called 'life world' the lived life is constantly integrating and interfacing local knowledges that sustain and challenge ones expressed behaviour and rationale. Life world though is considered almost too broad and unanchored to be of much use however and the term lived life is much more focused and localised and contextualised as agency intentionality and imagination. In this book life world is taken to mean lived life.

Netweave - a techneque counterpart of network - netweave has more of the idea of co-operation, synergy, mutual-aid and point-counterpoint than network

Noosphere - see Physiosphere. Noosphere here and assemblage of the individual ideas over the centuries is not a totalising or fascistic futuristic 'planetary mind' a sort of Gen2WWW that we can all plug into and we will thence determine our reality.

Nooificer - most writers looking to the past have imagined our ancestors as hairy cave wo/men: strong in body but of little wit. Others, looking ahead, have projected a race strong in mind but virtually disembodied: big brains on push-button fingers. Such is rationality's prestige that the latter vision is see as evolving from the former every time. Who covets the healthy outdoor life or that of the artificer or even of our nearest relatives, the care-free chimpanzee? Who will be the mindless chimpanzee's of tomorrow? How much better we modernists and even post modernists embrace the angst of cultural evolution-by-technology whereby brains are enlarged and enhanced via the computer's microchips, while bodies pale and soften in the glow of the cathode tube!
Choice between chimp and chips, body and mind, real and ideal has no real purchase. There really is only one the nooificer one who remakes the world after his or her noospheric imaginings.

Today many scholars (nooificers) believe that 'discourse' (literally, mental running to and fro) and its recording in academic treatises makes reality: an academic concept that has the ideational world floating on a body of science/technology whose derivative material artefacts and manipulations then provide the substantial matrix of urban living, basically without the need for sentient human intervention (except this thought thereof).

When this ontology is broadened to include the idea that humanity has 'dominion over' nature we then find ourselves on the top of a very very sharp pyramid in that (1) humanity is separated from the rest of nature (2) humanity has dominion over that nature and (3) humanity expresses this dominion by virtue of the nooificer/scholar.

Ontology - one's raison detre - the Artificer's ontology emphasises the personal, spontaneous, (what has been called 'naïve'), direct, concrete and mundane experience of, and in, the world. It is much more built on concrete understanding than derived from abstract schematics. One's concrete, 'spontaneous', 'naïve' experience of nature, in short **one's lived life**, in its endless diversity of creativity and form, has ontological adequacy is somewhat aligned with the ontology, 'the more we understand particular things (i.e., aspects within diversity), the more we understand God (i.e., diversity within unity)'. There is no *need* for higher experiences/holons/spiritualised essences of something more *real*. Thus the mundane, hologram like, contains the whole world within it if we will but look. A hologram wherein locate the instrumental and normative. [This is in line with Spinoza's consubstantial non-dualism, where for instance mind and matter derive from a common origin or substance (to stand beneath). For example for Spinoza God who has matter <u>and</u> mind as two of his attributes and is the ultimate substance <u>and </u>explanation of the world.] Such a grounded ontology largely overcomes what A. N. Whitehead (1929:7-8) called the fallacy of misplaced concreteness, which, may

in fact be seen as the fallacy of misplaced abstractness: This fallacy consists in neglecting the degree of abstraction involved when an actual entity is considered merely so far as it exemplifies certain categories of thought. There are aspects of actualities [i.e., concrete objects] which are simply ignored so long as we restrict thought to these categories. Quick (2006).

Pattern Thinking - see Interface also called Interface Thinking - The pattern is not a hierarchy. The pattern is a system of relationship. And this is what Mowaljarlai is trying to teach us, about wurnan. In indigenous pattern/interface law is wurnan that is 'sharing even synergy system'. It's a pattern in the land, because one has neighbours alongside us, everyone has a symbol that we know one another by, downstream or southwards or northward and eastward i.e. vertically and horizontally. It is a system of relationship, the way we related to each other, to species, to land. And when we are in relationship there are no bosses, there are no rulers. Everybody gives and receives in a structured relationship which comes from the land. This has been called 'pattern thinking' and ultimately 'pattern law' in indigenous circles. Mowaljarlai, and Lobez. (1995).And of course hybrids are interface entities, sometimes even living. Genetic manipulation is an interface technology that will change the 'face' of our known world.

Triangle thinking, on the other hand, is thinking in a hierarchy. It's a 'boss' system, everybody has a boss over them and everybody can boss somebody under them, until you get right down to the base line where those people, and that's often us, have very little power at all. And triangle thinking is a 'power down' system, where power comes from the crown and is filtered down.

Poïesis means 'to make' in ancient Greek. (creation, from *poiein*, to make) This word, the root of our modern word 'poetry' was first a verb, then a noun, describing an action that transforms and continues the world, and a representation of same respectively. Neither technical production nor creation in the romantic sense**, *poïetic* work then as in the exemplar project serves to reconcile thought with matter and time** as well as **man with the world.** In this sense poetry and acting are forms of mimesis. Here we see the artificer as a poet using physical materials rather than words to create a poem as exemplar project.

Problematechneque whereby a problematique is understood in terms of its capability of solution through techne i.e. artificing.

Practique - the practice of techneque, the counterpoint to praxis the practice of technique

[Discourse - a noospheric transaction on a particular topic based on words & concepts.]

Praxicourse - the praxis equivalent of discourse and morphs the concept of 'discourse' into the retroduction between discourse and practice, while maintaining the distinction between the noosphere and physiosphere.

Physiocourse/Practicourse/Artifiocourse/Bushy yarn - talk their walk - an adaptation within the physiosphere and a term that represents the 'non instrumental' instrumental discourse whereby in Socratic fashion an artificer reflexively 'gives account' of his/her activities in terms of the big and little pictures involved. The discussion moves to the physiosphere for the integration of noospheric understandings into the physiosphere not vice versa. This level of 'reverse discrimination' is called for in today's world and if undertaken properly is designed to lead to the re-integration of doing and thinking, of the physiosphere and noosphere. This is the type of communication artificers often have after a job about how they had to do such and such to achieve this and that and this

embeddedness of thinking and doing, always emerges from the 'lived life' after 'being on the tools' e.g. for that day or week or to redress a particular problem.

Here the conversation is not noospheric with illustrations from the physiosphere it is the other way round with occasional theoretic illustrations however the thread is thoroughly grounded in the physicality of the day to day life. Deconstruction however shows this most vital and yet most ignored form of conversation is mutual aid learning literally 'at work' and is vital for the transmission of learnings that day and so forth a sort of small scale mutual aid action learning circle. [Such conversations are very challenging for those of us embedded in the noospheric world of the academe, and we see it as a waste of time. PW]

Physiosphere - matter (the physiosphere) requires *depth* through matter *complexifing* enough to sustain life here on Earth which then *complexified again* and generated the **biosphere** had transcended but included its predecessor, then the physiosphere *complexified again* through evolution i.e. **evosphere**, gradually generating global ecology which *complexified again* resulting in the gradual emergence of consciousness mind as mind giving us the world of (human) ideas i.e. the **noosphere**, which transcended but included the biosphere which, in turn transcended but included the physiosphere.

One may notice a slight Cartesian hangover in this and for instance Wilber's view where the physiosphere is considered simply *res extensa* which is categorically distinct from the noosphere, *res cogitans*. Certainly the Cartesian dualities explored in the Great Transitions of Chapter 11, suggest such however this e-book sees these dimensions as overlapping a little like male and female where the are different concepts within which 90% say of the population locate yet these two categories overlap to the point that like in the valley joining two mountain peaks it is hard if not impossible to say where one mountain stops and another starts!! Furthermore 99% of celestial objects are res extensa e.g. the moon and mars neither of which have life on them they are 'dead' they are inert physiospheres.

Post-Post-Modern Artificer - The post-post-modern artificer uses ultra modern manufacturing techniques, tools and methods in the traditional custom-build 'human touch' way that blends techne and technology. **This is the sense in which Artificer is used in this eBook.** This term is explicated in the section on the PPM.

Prohairesis – **choosing ahead wisely** – (Bushie extended to *acting ahead wisely*), based on **Phronesis -** wise action, practical wisdom (Bushie actually!!) in the context of **Parrhesia –** (Bushie contexted) the discourse of 'T'ruth whereby frank and open discourse with fellow citizens of the project to enable *acting ahead wisely*. Related though unfortunately not identical English words e.g.: 'much too *perspicacious* and *practical wisdom* to be taken in by such a spurious argument'; 'observant and thoughtful, she was given to asking *sagacious* questions'; 'a source of valuable insights and *sapient* advice to educators'.

Reversals - This debasement of craft can still be seen etymologically in for instance the reversals in word meanings. For instance: to the mid 1600's **artificial** meant full of techne, deep skill and art. More recently the **artefact** no longer is regarded as the original expression of tehne but rather as a cheap mechanical copy. Even more telling has been the removal from **craft** of any residual meaning of **art**, Ingold (2000:349-350) and thus the separation of **art** and **artisan** with the debasement, behaviourisation and mechanisation of the latter and the elevation of the former to intellectual luminary.

Indeed some would argue the ultimate artefact is the environment, Gaia herself, certainly within this management commodification of the environment the human being becomes an artefact, an artefact of the technology that centuries ago he created to liberate himself from

dependence on nature - now he has removed that dependence but replaced it with one on technology.

Sauvage - Future Primitive - wild, untamed, original, direct, emergent, uncomplicated and un-weakened by sophistication or unnecessary elaboration, authentic, grounded (even egoless and unencumbered). A French term often translated 'savage' into English rather than 'direct authentic'. Direct in the sense of from the ground up with what is at hand and authentic in terms of the big picture, arising in the sense of Heidegger's aletheia i.e. unfolding, emergent. Sauvage is a key aspect of the Artificer. See Chapter 8 for more on sauvage dessein (savage design). So this eBook is about the 'sauvage mecanique/mechanic' or the 'sauvage engineer'. Since the passing of the Neolithic time we have long betrayed our sauvage core. This for Alexandra (2005: 640, 663, 676) will generate unconsciously an emergent archetypical direct and grounded character.

Savoir-faire - knowledge of just what to do in any situation; tact

Scientheism - science may well have taken on the role of explaining the world to us however the deep psychic angst from the fall remains and religion is necessary to salve this pain. Today this resurgent scientism may well be seen as Scientheism an inversion on the primal religion of all was unity of matter and mind to the separation of mind as soul in the fall now as all being matter subject to universal reason.

Skill - (a) ability to perform unconsciously repetitive mechanistic actions - the dissolution of the link between the individual's **perception and action -** this in conventional parlance is enskillment whereas in artificer parlance is deskillment (see Skill (c) below)

Skill - (b) ability to perform an activity with alacrity and efficaciousness, which may be considered to have three principal components: (1) Performative (the behaviour to get the job done), (2) Declarative (explicating to others what one has done) and (3) Heterotechnic (ability to enact the skill within the context of the broader project [(1)&(2) Wilson (1998:333), (3) P Wildman] Sports psychologists recognise the importance of the interaction of these first two components plus they recognise the existence of specialised 'mechanoreceptors' on the skin that have to be activated to generate 'muscle sense' affecting body orientation so crucial to fine tuning and correction of skilled movements as they are performed - see skill component (1) above. Techni-skill emphasises (1) while Techne-skill emphasises all three.

Skill - (c) By skills I do not mean techniques, movements or behaviours of the body, but rather the capabilities for **action and perception** of the whole organic being (indissolubly mind <u>and</u> body) situated through the lived life of that organism in interaction with a richly structured environment. Such that displaying a particular skill is not then a matter of furnishing a set of generalised behaviours, capacities or competencies which are conceptualised as compartments of task. Rather skills are developed through the application of agency, intentionality and imagination, as part of the active engagement with the constituents of her lived life, an synergy of mind and matter. [after Ingold (2000:5) - adapted]

Skill - (d) as part of a 'heuristic sentient ecology' where in is located humanity strongly located within the life world which is in turn anchored perceptually, visually and mimetically grounded in the lived life wherein individuals imbibe skills through an apprenticeship which engages their agency, intentionality and imagination. Skills are internal not some externally described behaviour.

Skillfun an extension of **skillful** and refers to the delight that can occur from the skilful deployment of ones abilities in regard to a worthy and enjoyable cause. We see skillful in children at play or adults engaged in self selected artifice - cooking, gardening, sewing, constructing etc.

Structure in this context, may be seen as the constitutive institutional arrangements, instrumental edicts, socio-cultural mores, governmental laws and regulations that focus, constrain, enhance, and enable individual agency and pre-distribute associated life chances.

Synthethical reason a combination of synthesis and ethics (instrumental and substantive viz. bringing the parts of the nascent ethical whole together ethically in acting ahead wisely). [an interpretation and extension of the ancient Greek word prohairesis - 'choosing ahead wisely' extended and amalgamated with phronesis - practical wisdom to mean 'acting ahead wisely'].

Techni-Skill - has become reductionist viz. correctly performed disaggregated reactive behaviour in the manipulation of a tool in accordance with set algorithmic instructions developed in accordance with some abstract theory - head knowledge. As such skill does not involve synthesis, judgment, uncertainty or artisan commitment to excellence (let alone artificer commitment to interface and whole project responsibility).

Techne-Skill - the singing tool - hand wisdom - may be distinguished from episteme, the Greek word *technê* (literally: craftsmanship) is often translated as *craft* or *art*. It is the proactive rational method of understanding and operations used by the craftsman in using mental and manual dexterity in producing an object or accomplishing a goal or objective - heuristic. The means of this method is through art. Here techne represents the connection between skill in the narrow sense of performing a piece of work and the lived life of the worker. This is where the 'living wage' has a home where the worker not only combines his or her skill with their own job but also with their own lived life in the broader society.

Techne then resembles episteme in the implication of knowledge of principles, although techne differs substantially from episteme in that its intent is human making or doing, not simply disinteresting understanding or reflection. Techne here may be seen as human agency inc. skill, judgment, planning, ethics, kairos and so forth, applied through the use of a tool in participating with and in nature viz. the participatory principle Levi-Strauss (1966:38). Technical artistry comes close, and contains the view that as such it is more than instrumentalism and contains an element of the 'search for truth' truth through embodiment in Nature rather than instrumental appropriation from Nature (as at present).

The Australian Position - historically: Tragically and in a somewhat bizarre corruption of calling, in the late 80's and early 90's Unions were at the forefront of killing this living link through the union chaired inquires into labour market reform that ultimately led to the complete deskilling in the sense of removing techne and its replacement with techni in competency based training (CBT) a vocational education extension of Taylorism where skill becomes simply replicable behaviours. [the Carmichael report into vocational education http://www.greenleft.org.au/1992/61/2932 Green Left Weekly issue #61 1 July 1992, and the 1991 Finn Report http://www.greenleft.org.au/1992/70/2520 , set the stage for the Australian Training Reform Agenda which incorporated CBT and Traineeships. All this in parallel with the abolition of the Colleges of Adult Education of the Whitlam era and their absorption into the mainstream University system with the icing on the cake during the early to mid 1990's of the trenchant triumph over the Local Labour Market Initiative movement which embodied a stronger connection to community and techne, for instance in NAGLEI 1987a,b,c. So by the mid 1990's the very bodies charged to protect workers rights, the Unions, had usurped and commodified the workers, their rights and training as well as pushing out their one viable alternative or companion. This was at the same time that the General Agreement on Tariffs and Trade was signed and globalisation or global instrumental/formalist economics was being introduced world wide in the so-called developed nations. The key requirement therein was an 'internationally competitive work-force' and CBT writ large was going to give Australia just that].

Technelect - someone with a high level of hand knowledge even hand wisdom someone who can Artifice

Technifact - Artifact - commonly yet somewhat incorrectly called artefact refers to any object shaped (often by an artificer applying a tool) to some interactively developed conception of the required form. Artifact commonly called Artefact.

Technefact - Artefact - refers to any object shaped (often by a tool where the shaping is largely discrete from human intervention) to some pre-existing conception of the required form, also known as Artefact.

Techni-literacy - literacy of technology in the formal sector science and industry
Techne-literacy - literacy of techne within the informal sector of the home

Technique - a precise method or algorithm, for applying objective science based external objective knowledge of and skill in the application of that algorithm of operating technology by reactively applying tool, materials and skills to assemble directly a requisite article whose beauty and function have been externally determined by others. *[e.g. sequence of assembly]*.

Techneque - a craftsman method or heuristic, for applying inter-subjective science through understanding, experience and skill in the application of that heuristic to the 'D'esign process by interactively applying tools, materials and skills to artifice or shape directly a requisite article of beauty and function. [PW word]. See Makashini Magazine (Finish) http://www.kaapeli.fi/eko.fi/magazine/dependence.html .

Techneology Transfer (TT)

A crucial issue in the process of constructing an Exemplar Project is TT, techne in the sense that it includes more than technological skill. Techne includes the integration of the human and the tool as well as 'walking ones talk' that is personal ethics as well as in the Artificer sense understanding and enacting the ethical progression from 'do' to 'is' to 'be' an Artificer.   A particular challenge for any would be bushy is when working with a bushy on an Exemplar Project over a period of years is to come out of the process learning something not just being a spectator or a so called 'gofer' that is with TT, in the sense of (1) familiarity with work tools and (2) in close work skills associated with these tools then as (2) broader picture decision heuristics in the use of which tools and system diagnostics to determine what issue needs to be addressed and then (4) experience in the EP's operations and potential all within the context of an ethical praxis (5) i.e. walk ones talk as a global citizen i.e. techne in its broadest sense.

Technifice - as technifice - the process of the use of technology in addressing a particular issue/problem/plan.
Technefice - as artifice - the process of the use of technelogy.

Technical - According to principle or 'join-the-dot' type instructions; formal rather than practical - competence e.g. a technical advantage - rules for tool use - algorithm - objectified and externalised knowledge as in 'technical drawing' or drafting. Ingold (1993a:433-434). *[e.g. the assembly instruction sheet]*.
Technecal - A heuristic process of bringing forth or artificing articles of beauty and function through the interaction of the: crafts person, materials, Design, customer and the experience of artificer in the interaction of these over the years.

Technician - someone who knows the rules for tool use - someone who is technical. *[e.g. you as the chair assembler]*.
Technecian - someone who is an artificer a bush mechanic.

Technilect - commonly called a nerd - someone with a high level of ability to navigate, use and interconnect technological gadgets

Technology I - has become a mode of human existence commodified, objectified, externalised, formalised and commercialised. Technology may be defined (by Reynolds) not only as a system of objectified mechanical or social organisation principles that intervene between the wider structures of society and the tool-maker and tool-user in person**,** in short the sum of the ways in which social groups provide themselves with the material objects of their civilisation**.** Lyotard (1984:4), Reynolds (1993:343). 'Tool' here has to be understood broadly to include a physical object such as a screwdriver, hammer, tape measure etc., as well as a social process and its associated phenomenon such as money/transactions, democracy/elections or bureaucracy/regulation. There is, then, a substantial differentiation between seeing a tool as object-manipulation – figuring out what to do/needs doing i.e. a puzzle-solving exercise requiring intelligence and technical skill; to seeing a tool as requiring technical artistry or techne i.e. the actual doing of the exercise. Wynn (1993:340). Indeed skill for Ingold (1993:344) is an index of personal identity V's the plan or V's the \$ or the Exemplar Project.

Technology II - is a word with origins in the Greek word *technologia* (τεχνολογία), techne (τέχνη) 'craft' and logia (λογία) 'saying'. It is a broad term dealing with the use and knowledge of humanity's tools and crafts. *[e.g. the sophistication of the tools and instructions (mechanical V's electrical drill etc.) needed for assembly]*.

Technelogy - a counter point mode for human existence based human skill and informal power structures. Techneology may be defined as the heuristic interactive a posteriori embedded practical heterotechnic knowledge forming the logic for 'logos' of artifice and acting ahead wisely to shape requisite articles and processes of function and beauty for the benefit of our children's children. In these senses then techneology is pre-technological (also called 'vernacular technology' or 'folk technology' although these technologies are more directly limited to the minutiae of everyday life such as pots and pans).

For instance Heidegger's (1977) view is that technology is not only 'an instrumental' means to an end' as it is usually understood. Its essence is 'to reveal the truth' or the being of the world as we embed ourselves in the world through the use of our technology a different approach to us appropriating the world to us. This is the meaning of the ancient word techne was understood in Greece. However, we lost this meaning in modernity, and focus nowadays more and more on the other one of technology as techne as a means not an end.   Thus everything becomes to be understood as resource for humans, essentially without any purpose or intrinsic end-value of anything. And humans ourselves thus become just a special kind of resource for this technology of ours - we become our own Frankenstein, something else to be understood as resource, in an endless chain of resource transformations, natural diversity absorption and technological diversity emergence, and entropy generation with no inherent purpose, without any value as human per se. According to Heidegger humans must become anew aware of this lost meaning of the essence of technology 'to reveal the truth' of the meaning in technology. Wildman (1976).

In Ecosophy, possibly eventually techneque could form part of 'deep technology' which in turn may well draw from a Deep Science - a moral, aesthetic, and practical science that adjusts itself to culture not VV. Too many deep ecologists single out technology as the villain. But hiking boots, clothing, food, maps, writing--all this stuff is technology too. We cannot be human without technology. And technology, if it is successful, can bring us closer to nature, not further away. Techneology a technology for 'rewilding' See also Wired Magazine: http://www.wired.com/wired/archive/3.10/rothenberg.if.html for a ecosophy perspective & http://www.social-ecology.org/harbinger/vol2no1/bookchin_5.html for a social ecology perspective.

In the private sector the term is occasionally used to describe a high-tech workplace and high-touch workforce management system e.g. a Volvo production line where groups of

employees produce sub assemblies of the whole car, or US Toyota production line where employees practicing TQM (Total Quality Management) and although only responsible of a particular screw say can stop the production line if they notice something out of place anywhere on the chassis so far Schifferes (2007), or call centre where the high touch means high levels of customer contact. Nasbitt (2001) extends this by seeing the hight touch in relation to our search for meaning not in the type of technology, so although presenting some initial interest this approach remains firmly within the status quo concepts of technology and development. Another approach is that

[**Counterpoint technology**: Today's Deep Ecology movement and some parts of the Social Ecology movement regard technology as an evil force, something alien to the natural world, loosed almost by divine mistake on this planet. These new energies are not regarded as legitimate expressions of sentience, universal life-force, or granted the respect we accord to "natural processes", but rather as something wrong, something to be controlled and repressed. Deep ecologists seem to have the same fear and loathing toward today's out of control technology as humans have had until just recently toward uncontrolled Nature, with her savage, untamed wastelands. They call technology inhuman, cruel, and heartless, using the same words we once used to describe cruele wildernesse-and like humans of the 19th century waging war on wild nature, environmentalists today long only to conquer technology, to subdue and control it, as we have nature herself. Nevertheless the world of technology, cultural behaviours and abstract and concrete symbolic **structures such as technology are likewise built out of, on top of, and into human brains, emotional drives and bodies**. This is planetary symbiosis at work. This e-book seeks to address these concerns without abandoning technology thus the concept of techneology]

Technological - from theory to effect - a priori. The logic of out-workings of (abstract thinking) disinterested reflections on 'T'ruths. Of or relating to a practical subject that is organized according to the logic of scientific principles e.g. 'technical instructions'. A technological utopia may be seen to be in part the 'smart house' writ large. *[e.g. the completed chair including the materials and tools and parts and assembly instructions]*. Technological represents a scaffolding for further advancement of the mind cp. body possibly towards a singularity.

Technelogical - from effect to theory - a posteriori. The logic of the participatory principle cp. disinterested reflection on universal 'T'ruths. A seldom used and little recognised word effectively coined by Paul Wildman and occasionally used to refer to archaeological finds as 'carving techneology' where the intent of the artisan is inseparable from the use and effects of the tool. A technological utopia may be seen to be in part the cathedral communities of the Middle Ages. For example a fighter pilot who buys a glider or ultralight for weekends moves from technology to technology. Much DIY work is in the technological category and is in heritage more from the French 'bricolage' than from the English 'equivalent' of 'handyman', part of a participatory consciousness or ethos. The exemplar project is technological cp. technological. Now the tool sings and dances in the hands/harmony with the artificer. *[e.g. not buying the Ikea flat pack but making a chair oneself]* (PW word). Technelogical represents a scaffolding for further advancement of the body el ar nature cp. mind possibly towards a mutuality.

Technics - the theory, principles and study of technology.
Technecs - the theory, principles and study of techneology.

Technorati - techno-hierarchical nerds.
Technerati - artificers, mutualist nerds.
Literati - noospheric intellectual nerds.

Technomorphism today we see anthropomorphism devolved to more of a narrow technomorphism where the world is interpreted from the perspective/lens of human technology, gadgets etc., based on a discrete objective consciousness, whereas this book argues for a:

Technemorphism where the world is interpreted from the perspective of the interactivity of humanity (consciousness) and the world around us. [extensions of this view are physiomorphism where the world is interpreted from the perspective/lens of the natural world - a version often found in indigenous cultures, and cosmomorphism there the perspective/lens is that of the cosmos] In all instances these are forms of participatory consciousness or after Levi-Strauss (1966), Clayton and Opotow (2003) what may be called atavistic 'wild science' from the 'savage mind'. In this sense technemorphism draws more from physiomorphism than anthropomorphism - examples of the former include gardening, cooking, sewing, engine building etc., the danger is as ever that it degenerates into a mechanomorphism where the universe is seen from the perspective/lens of the machine.

Technosphere - technology/culture/nature - nature absorbed into culture
Technesphere - Nature/culture/technelogy - see artificeosphere - culture absorbed into Nature

Technosophy - the philosophy of technology links to the philosophy of science
Technesophy - the philosophy of technelogy links to ecosophy

Tensegrity - a structure where its integrity is maintained by a dynamic balancing of simultaneous contraction and extension forces - e.g. a reinforced concrete beam in a bridge, the operation of the agonistic and antagonistic muscles biceps and triceps for instance.

Tool - technical and technecal conceptions - a contrivance held in and worked by the hand, for assisting the work of (especially) mechanics, artisans or labourers in directly impacting concrete reality/physiosphere, also called utensil in domestic applications - pots and pans nonetheless. Tools can be weapons and vice versa. Tools can also be conceptual/noospheric as in for instance Ghant charts for project management, learning, process management and ultimately even language. *[e.g. the tools (Allen key, screwdriver, wood glue, paint etc supplied in the flat pack].*
- a technical approach to tools sees the tool as discrete to its human use and ultimately takes the human completely out of the loop - this removing human wisdom at the point of application/worksite.
- a technecal approach to tools would generate renewed emphasis on tools as extensions of the hand V's head as is the case today e.g. today's robot assembly line - worker as extension of the line (Taylor) V's Volvo's techne group based assembly line (line an extension of the worker) or Toyota's Georgetown Kentucky plan where the Total Quality Management approach means the workers manage the line, and the overall product i.e. the car is the exemplar project in that any worker can stop it if a quality issue/loose screw is spotted and they do in the US stopping it (2000times per week) 1000times more often than their neighbours at the new Ford Truck plant at Dearborn, Michigan. Indeed a triumph for lean production a unique combination of 'high tech and high touch'. Schifferes (2007), Womack and Jones (1972). This distinction can also have some 'bad' side effects when for instance in the Air NZ case when an Air NZ flight hit Mt Erebus killing all on board in the early 1980's. Mahon (1985). Yet everything on the jet was functioning perfectly its just that a technical approach was being used and the auto-pilot was switched on where as there was big rocky thing sticking up called a mountain which is what the passengers were going to see in the first place.

Yet even the Royal Commission never even considered whether the pilot should have been looking out for big rocky things sticking up - never - they never asked the techne question rather it remained a technical one and it was found that the flight co-ordinates were changed without telling the pilot by Air NZ HQ immediately prior to the flight. Clearly in this instance it was not a technical fault rather a politico-process-technecal one. Techneque

allows a certain agency for the operator and as such is a challenging protocol in training as training is about competence not agency. Techne also places a huge emphasis on whole system tools, interface tools and system integration tools. In today's largely dumbed down society techne is dangerous and techni-skill is one of two remaining cards in the deck, the other being completely autonomous systems. Largely missing with today's skill related approach to tooling

Work - conventionally in modernity means - labour, effort, travail, struggle, productive toil. English is a Germanic language and our word 'work' comes from the German 'wirken' and 'arbeiten' the latter conventionally associated with the English sense of work. Work particularly the Middle Ages, however meant the bringing forth and revealing or *aletheia* through the producing of houses, tools, pictures. Only in modernity has its meaning been constrained to *causa efficere* and labour (travail). Indeed Heidegger (1977:160) maintains that the fundamental characteristic of working and work does not lie in *efficere* and *effectus* or *labor laboris* but rather in *entelecheia* as in presencing of a realised potential viz. e.g. the Exemplar Project of the Artificer. (In Latin *labor laboris* can mean work or labour). Furthermore Wirken in its more ancient historical sense drew on a broadly sense of revealing in its Greek derivation. Work also means ongoing activity - betrieb - ongoing activity, driving on, industry, and determined committed action.

Intriguingly the context of pattern, tree or network 'thinking and acting' can be seen in the word ge-wirken (web, texture, weaving, and gathering). Heidegger (1977:160-168 footnote 23) adds the prefix to emphasise the efficaciousness gathering of various items and ideas for a particular end. **In this e-book work is used in the sense of blending wirken and arbeiten - to execute, to work, to fashion, to fabricate, ultimately to set forth the way of revealing,** to incorporate this second, yet more Ancient, yet breathtakingly post post-modern, sense of *aletheia*.

Appendix M - Quotable Bushy Quotes

Aliud est theoria, aliud est practica – One thing is theory, another thing is practice.

Anon: For every action, there is an equal and opposite government program.

Anon: Never be afraid to try something new. Remember that a lone amateur built the Ark. A large group of professionals, designers and workers built the Titanic.

Aristotle: took the view that **human beings are mimetic beings**, feeling an urge to understand reality through the use poiesis as a sort of 'action as theory creation' to internally model reality and to explicate this in the creation of texts, art, poetry and actions that reflect on, represent, and seek to change that reality.

Alice Bailey (1982:7): Before a man can tread the Path he must become that Path itself (and before man can become the Path he must make the Path himself) (PW)

Alice Bailey (1982:2): As a man thinketh so is he (as he doeth so he becomes) (PW)

Pearl S. Buck: The secret of joy in work is contained in one word - excellence. To know how to do something well is to enjoy it.

Winston Churchill: Kites rise higher against the wind - not with it

Vernon Cooper: These days people seek knowledge, not wisdom. Knowledge is of the past, wisdom is needed today and practical wisdom is of the future. [adapted PW]

David Deverell: Spirituality does not help you escape the harsher and mundane aspects of life, but rather empowers you actively to transform them. [adapted PW]

David Deverell: If you want your dreams to become a reality, better wake up and act!

David Deverell: Words and actions are the outward manifestation f your thoughts. If you want to be successful learn to grow no matter what first you must learn to control your hands as well as your thoughts. Never doubt the possibilities of what can be achieved with a positive mentality and a pair of active hands. [adapted PW]

David Deverell: As deeply as I yearn for equality, prosperity and opportunity for all humanity, I have a responsibility to help them achieve that.

John Dewey: An idea is true if it works [American educationalist and pragmatic philosopher]

Thomas Alva Edison: Genius is one percent inspiration and ninety-nine percent perspiration.

Thomas Alva Edison: Opportunity is missed by most because it is dressed in overalls and looks like work.

Albert Einstein: The significant problems we face today can't be solved at the same level of thinking we used when we created them.

Ralph Waldo Emerson: Good thoughts are no better than good dreams, unless they be executed.

Victor Frankl: What man actually needs is not a tensionless state but rather the striving and struggling for some goal worthy of him. What he needs is not the discharge of tension at any cost, but the call of a potential meaning waiting to be fulfilled by him.

Buckminster Fuller: Man knows so much and does so little

John W. Gardner: The society which scorns excellence in plumbing because plumbing is a humble activity, and tolerates shoddiness in philosophy because philosophy is an exalted activity, will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water.

Helen Keller: I long to accomplish a great and noble tasks, but it is my chief duty to accomplish humble tasks as though they were great and noble. The world is moved along, not only by the mighty shoves of its heroes, but also by the aggregate of the tiny pushes of each honest worker.

Arthur Koestler (1964): Every creative act involves… a new innocence of perception, liberated from the cataract of accepted belief.

Andrew Kuntz: I find working with glass meditative, almost therapeutic. I can leave the world behind, and focus... The simplicity of form, the drama of rich, intense colour, the joy of challenge, and the challenge of endurance... The piece, when it is over, is not what is made, but how it is made.

LaChapelle: Neither opposing nature or trying to be in communion with nature; but of finding ourselves within nature . . . that is the key to a sustainable culture.

D.H. Lawrence: Oh, what a catastrophe for man when he cut himself off from the rhythm of the year, from his unison with the sun and the earth. Oh, what a catastrophe, what a maiming of love when it made a personal, merely personal feeling, taken away from the rising and setting of the sun, and cut off from the magical connection of the solstice and the equinox. This is what is wrong with us.

Sara Lawrence Lightfoot: Learning is at its best when it is deadly serious and very playful at the same time.

Victor Lowenfield (1961): We have to regard as our sacred responsibility to unfold and develop each individual's creative (creactive) ability as dim as the spark may be and kindle it to whatever flame it may conceivably develop. [Creactivity here becomes a human right - PW]

Arne Naess, the ecophilosopher (ecosopher) stresses, likes to appreciate diversity of all kinds, and welcomes discovery of each new species of creature, dialect, culture and language. These are organizing gestalts with unlimited possibilities.

Nietzsche would deny any form of transcendence, whether moral or divine, by saying that transcendence drove one to slander this world and this life. But perhaps there is a living transcendence of which beauty carries the promise, which can make this mortal and limited world preferable and more appealing than any other." (Camus)

Theodore Roosevelt: It is not the critic who counts, not the man who points out how the strong man stumbled, or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood, who strives valiantly, who errs and comes short again and again, who knows the great enthusiasms, the great devotions, and spends himself in a worthy cause, who at best knows achievement and who at the worst if he fails at least fails while daring greatly so that his place shall never be with those cold and timid souls who know neither victory nor defeat. *From a speech given in Paris at the Sorbonne in 1910*

Rick Smyre: Continuous innovation requires the ability to see and act on connections and patterns among diverse ideas and factors

Socrates to Phaedrus, 'I'm a lover of learning, and trees and open country (read 'the world of nature') won't teach me anything.'

W. Clement Stone: When you discover your mission, you will feel its demand. It will fill you with enthusiasm and a burning desire to get to work on it.

When the Way (Tao) is lost...there is benevolence.
When benevolence is lost, there is justice.
When justice is lost there are the rites (codes of conduct)
The rites are the end of loyalty and good faith,
 the beginning of disorder
 - Lao Tsu (604 BC - 531 BC)...Tao Teh Ching (PW)

Paul Wildman: It's not only what it is and even not only why it is what it is for ultimately it is how we shape it to be thus and decide why it is what it is. (12-2005)

Paul Wildman: A bushy artificer, prototypes an idea that does something useful, does it really well, & looks terrific too. None of these factors on their own is enough to make the prototype a success; however their combination, through deft & creative implementation of function, is what makes the difference. *Innovation, Functionality, Efficacy, Aesthetics.* (08-2006)

Paul Wildman: The Artificer, practicing *reuse* rather than *recycle* will ultimately be seen by the corporatist nation state as and anti-consumerist terrorist (11-2007)

James Yorke: The most successful people are those who are good at plan B.

Source: QQ's I have come across and quote sources such as http://www.wisdomquotes.com/cat_goals.html Please read for the bushy wisdom not the bibliographic source.

<mark>Resources</mark>

About the author

About: Dr. Paul Wildman

Paul has an extensive track record in the areas of, Project design and development, Artificer Learning (Bush Mechanics), Anticipatory Action Learning, Strategic Planning, Futures Studies, Business and Organisational Development and Action Learning. Presently (2001-present) he works in Kids and Adult Learning, through his family company KALGROVE Pty Ltd, which specialises in Child Care, and Adult Learning Development areas in the private sector, undertaking strategic, and catchment analysis in the companies business niche [http://www.kal.net.au/]. He also runs a niche publishing business Prosperity Press – publishing in futures related areas. From 1989-2001 he worked in the Adult and Vocational Educational area concentrating in Apprenticeships and Traineeships – ultimately as Deputy Commissioner for Training and Director Employment Directorate (Queensland Government), and from 1994-97 as lecturer at Southern Cross University (SCU) where he developed, and lectured in, Futures Studies (FS) then the only on line Masters specialisation in Futures Studies in the world. He is (2004-present) node chair of the United Nation's University's Millennium Project for Australasia. www.stateofthefuture.org & http://www.acunu.org/millennium/nodes.html .

He has published four CD-ROMs, contributed 10 chapters and some 45 articles in these and related areas, comprising in all some 162 documents individually and co-authored over a 30year period.   Interests include bike riding, squash, healthy diet, grandchildren minding and spending the past three years on building his own Artificer exemplar project in the marine services industry as well as developing a theoretical and practical understanding of this specific type of advanced Anticipatory Action Learning called Artificer Learning which, in Australia is called Bush Mechanics, and publishing therein. Artificers are the step beyond Artisan and are expert generalists in a number of related fields. They bring a methodical and ingenuous approach to solving everyday dilemmas with an eye to assisting today the development of a better world tomorrow for our children.

Overseas experience
In management development and futures includes Tonga, India, Malaysia, Africa and Singapore and Papua New Guinea.

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2001 Cert IV in Workplace Assessment and Training, 1997 Doctorate in Management (Community Economy Futures), 1985 Masters Social Administration (Social welfare planning), 1975 BA Econ (Hons – Regional Economics).

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Web (accessed @ 01-2008)

(Exoteric) Artificer/Bush Mechanic
As sourced particularly in Appendix D and:
http://www.fbo.com.au/movie.asp?ID=10187 - Indigenous Bush Mechanics web site
http://www.abc.net.au/message/archive/bushmechanic/ Indigenous Bush Mechanic ABC TV series by episode
http://www.bushmechanics.com/pages/bush_mecanics/body_bm.htm - more general information on indigenous bush mechanics
www.hotfutures.net.au/bushie - hot futures bush mechanic blog
http://geolib.pair.com/smith.adam/won1-10.html Adam Smith on Artificers
http://www.yorkriteofcalifornia.org/royalarch/raeduc007.htm The link between Masons and Artificers
http://people.umass.edu/dkscott/CILA%20Institute/projects.htm an attempt to apply Wilber's integral learning at several co-operating academic institutions in the US – CILA the Community for Integrative Learning Action
http://zhurnal.lib.ru/k/korolew_p_m/pw2005.shtml The Artifice of Ingenuity
http://www.afrigadget.com/ the intriguing ingenuity of indigenous Africans
http://opensourcemachine.org/ open source machine esp. wrt application in 3rd world areas

(Esoteric) Artificer
https://www.wisdomuniversity.org/
https://www.wisdomuniversity.org/book.html
http://www.marianne.com/book/docs/ChartresFlyer_2.02.06.pdf the New Chartres Wisdom school (France) with its 7 Intensives:
Intensive I—***The Mystery of the Birth of the Divine Human***, July 2-8, 2006
Intensive II—***The State of the World: Wisdom and the Apocalypse,*** March 19-25, 2007
Intensive III—***Reimagining the World: The Perennial Wisdom and the Poetry of Beauty,*** Sept 16-22, 2007
This intensive will be in partnership with Veriditas.
Intensive IV—***Awakening Divine Creativity: The Arts of Healing and Ecstasy,*** March 16-22, 2008
Intensive V—***The Indigenous Mind and the New Cosmology,*** September 21-27, 2008
Intensive VI—***The Mysteries of the Divine Feminine***, March 22-28, 2009
Intensive VII—***Sacred Activism: Birthing the New World***, June 21-27, 2009

Bioneers
B Home - http://www.bioneers.org/
B blog - http://connect.bioneers.org/
B News - http://bioneers.ning.com/profile/BioneersNews

Chinese Philosophy
http://www.hku.hk/philodep/ch/index.html Chad Hansen's Chinese philosophy page

Cradle to Cradle Design   http://www.mbdc.com/c2c_home.htm
MBDC is articulating and putting into practice a new design paradigm; what Time calls 'a unified philosophy that—in demonstrable and practical ways—is changing the design of the world'. Instead of designing cradle-to-grave products, dumped in landfills at the end of their 'life,' MBDC transforms industry by creating products for cradle-to-cradle cycles, whose materials are perpetually circulated in closed loops. Maintaining materials in closed loops maximizes material value without damaging ecosystems.

Deming
The Deming Institute: http://www.deming.org/
The Deming co-operative http://www.deming.edu/demingcoop.html

Deming electronic website http://deming.eng.clemson.edu/pub/den/

Dictionary-Thesaurus-Encyclopaedia
http://dictionary.reference.com/

Ecosophy
http://trumpeter.athabascau.ca/index.php/trumpet/index

Elders - Global
http://www.theelders.org/

Homeschool Australia (see also Natural Learning)
http://hablog.beverleypaine.com/2006/03/embracing-natural-learning-philosophy.html

Indigenous matters
http://media.news.com.au/multimedia/2007/10/garma/

Informal Learning (Jay Cross)
http://www.youtube.com/watch?v=NlETGJ0mnno

Learning Enrichment Foundations (committed to intergenerational vertical and horizontal learning) http://www.lefca.org/ (Canada) [**BUSHY education organisation**]

Natural Learning
http://www.engines4ed.org/hyperbook/nodes/NODE-1-pg.html
http://www.motivation-tools.com/youth/natural_learning.htm

Piaget
http://www.piaget.org/biography/biog.html Piaget the developmental psychologist

Re-Use V's Recycle - Rage Against the Consumerist Machine we have become - deconsumerise society - anti-consumerist terrorism
The Artificer may well be pertinent to developing a new approach to a sustainable future in which humans are not so technologically dependent & obsessed with consumerism, & this short video clip of 'Terrorized into Being Consumers' that may shed more light on this topic. Well, let's imagine a hundred thous & Earth/Consumer Liberation Front cells all over the U.S. (& perhaps a million around the world) & then we'll see that those 'lights' are actually acts of socio-economic economic sabotage as the arsonist David brings down the corporatocracy Goliath beast. It's one way to fight back against the machine & the vision of a technological futures dystopic nightmare. Perhaps the **Artificer is a third way** to move towards a positive future or even 'save' it from those who would try to possess it by either deepening the corporate world or an ELF type response.

For me the difference between '**reuse**' & '**recycle**' is a big one & goes to the heart of the Artificer (& the videos below) is talking about. Many greenies advocate **recycle** not **reuse** yet recycle is extremely destructive of the environment in fact the recycle lobby has all but won the day – **recycle is not even about reducing consumption. Reuse** however, as the purview of the bush mechanic, brings a different relationship between humanity & its goods – here design & the 'hands on' or even 'techne' economy in which it exists is for repair & reuse – whether it be cars, computers or bicycles or electrical goods. If we are serious about green issues I argue we have to get some handle as futurists on 'reuse' rather than 'recycle'. Perhaps this *hands on* approach is a third way to save the future from those who would try to possess it by either deepening the corporate world or an ELF type response. Either way this is a time for action.
 http://www.youtube.com/watch?v=Ff1nNR4yvPo&feature=related
http://www.youtube.com/watch?v=h_CNMh5_n3M&watch_response

Rural Design
http://www.ruralstudio.com/mission.htm rural studio design - Auburn University USA

Social Ecology

http://www.thegreenfuse.org/socialecology.htm
http://www.social-ecology.org/harbinger/vol2no1/bookchin_5.html

Singularity
The rise of super intelligent life, created through the improvement of human tools by the acceleration of technological progress reaching the point of infinity the point of infinity. http://www.singularity.org/ . Here we see the link to the singularity when collective human intelligence on earth will be exceeded by computer intelligence for the first time. This is anticipated around mid this century. http://www.accelerationwatch.com/ .

Solar decathlon
http://www.solardecathlon.org/ exemplar project initiative

Strive (workforce development foundation) [**BUSHY job organisation**]
http://www.strivenewyork.org/strive.html (USA)

Triarchy
http://www.triarchypress.co.uk/pages/triarchy.htm

Workers Education Associations
http://www.wea-sa.com.au/ WEA South Australia
http://www.wea.org.uk/ WEA UK
http://www.ifwea.org/ International WEA federation top of home page screen RHS – WEA uses Study Circles – recognised by UNESCO
http://www.weaillawarra.com.au/ Country NSW – early days in the late 1915 & the journeyman's piece but with an academic focus
http://www.weahunter.com.au/ WEA Hunter Valley NSW

Text

Albery, N., ed. (1992). *The Book of Visions - An Encyclopaedia of Social Innovations*. London. 340pgs.

Abram, J. (2006). *Yin and Yang - the Feng Shui Perspective*, in *Options*. p. 26-27.

Achbar, M., J. Abbott, and J. Bakan. (2004). *The Corporation*. DVD

Albery, N. ed. (1992). *The Book of Visions - An Encyclopaedia of Social Innovations*. London. 340pgs.

Alexander, C., S. Ishikawa, and M. Silverstein, (1977). *A Pattern Language: Towns, Buildings, Construction*. New York: Oxford University Press. 1200.

Alexander, C. (2005). *The Nature of Order - an Essay on the Art of Building and the Nature of the Universe - three book series. This ref to Book 3 - A vision of a Living World. Chapt. 15 in Book 3 - How Living Process Generates the Process of Construction - All Building as Making*. UK: Centre for Environmental Structure. 700pgs.

Alexander, C., S. Ishikawa, and M. Silverstein. (1977). *A Pattern Language: Towns, Buildings, Construction*. New York: Oxford University Press. 1200.

Arendt, H. (1963). *On Revolution*. London: Penguin. 350 pgs.

Arendt, H. (1995). *The Human Condition (first published 1958)*. Chicago: University of Chicago Press. 350pgs.

Arendt, H. (2003). *Responsibility and Judgment*. New York: Schocken. 300pgs.

Aristotle, (1962). *Nichomachean Ethics: Translated, with introduction and notes, by Martin Ostwald*. Translated 1962 (circa. 350BC), Indianapolis USA: Bobbs-Merrill Educational Publishing. 320pgs.

Bailey, A. (1982). *Education in the New Age*. New York: Lucis Publishing Company. 175pgs.

Barrett, R. (2005). *A Whole System Approach to Cultural Tansformation*, in *Waking up to the wave - DVD*. Be The Change [www.bethechange.org.uk]: London.

Beck, D. and C. Cowan. (1996). *Spiral Dynamics: Mastering Values, Leadership, Change*. Cambridge, Massachusetts: Blackwell Business. 330. [see also http://www.wie.org/spiral/?ifr=hp-thm]

Beer, S. (1973). *Fanfare for Effective Freedom: Cybernetic Praxis in Government.* Brighton Polytechnic: Brighton. p.24pgs.

Beer, S. (1974). *Designing Freedom*. London: John Wiley & Sons. 100pgs.

Bell, A. (1995). Conservation Stories. *The Trumpeter - Journal of Ecosophy* [http://trumpeter.athabascau.ca/index.php/trumpet/article/view/869/1229]. 12(2): pgs87-91.

Bell, J. (2003).*Exploring the 'Singularity'.* The Futurist. **37**(3): p. 18-25.

Berman, M. (1981). *The Re-enchantment of the World*. Cornell: Cornell University Press.

Berman, M. (1990). *The Cybernetic Dream of the 21st Century*, in *Renewing the Earth; the Promise of Social Ecology*, J. Clark, Editor. 1990, Green Print: London. p. 12-32.

Berry, T. (1988). *Dream of the Earth*. 1988, San Francisco: Sierra Club Books. 250pgs

Bertalanffy, Karl Ludwig von. (1968a). *General System theory: Foundations, Development, Applications*, New York: George Braziller, revised edition 1976.

Bertalanffy, Karl Ludwig von. (1968b) *The Organismic Psychology and Systems Theory*, Heinz Werner lectures, Worcester: Clark University Press.

Bertalanffy, Karl Ludwig von. (1975). Perspectives on General Systems Theory. *Scientific-Philosophical Studies*, E. Taschdjian (eds.), New York: George Braziller.

Briggs, A., ed. (1962). William Morris (1834-1896): *Selected Writings and Designs*. Pelican: Middlesex UK. 300.

Bruner, J (1985). Vygotsky: a historical and conceptual perspective. *In Culture, Communication and Cognition: Vygotskian Perspectives* ed. J Wertsch, pp 371-391, Cambridge, Cambridge University Press.

Bunzl, J. (2006). *People-Centred Global Governance - Making it Happen! Through International Simultaneous Policy organisation and development*. London: International Simultaneous Policy Organisation. 130pgs.

Burnheim, J. (1985). *Is Democracy Possible? An alternative to electoral politics*. 1985, Los Angeles: University of California Press. 200pgs.

Campbell, J. (1972). *Myths to Live By*. New York: Bantam. 287.

Campbell, J. (1974). *The Mythic Image*. New Jersey: Princeton University Press. 550.

Campbell, J. (1988). *The Power of Myth*. New York: Doubleday. 235.

Cavallo, D. (2000). Emergent Design and learning environments: Building on indigenous knowledge. *IBM Systems Journal*. **39**(3&4): p. 768-781.

Checkland, Peter & Scholes, Jim. (1999). *Soft Systems in Action*. Wiley.

Checkland, Peter (2005). *Learning for Action: A Short Definitive Account of Soft Systems Methodology, and Its Use Practitioners, Teachers and Students.*

Clayton, Susan and Opotow, Susan (Eds.). (2003). *Identity and the Natural Environment: The Psychological Significance of Nature*. Cambridge, Mass. and London: The MIT Press. 353 pp.

ClearView*, Top Secrets - best kept secrets of happy retirees*. 2007, Brisbane: ClearView Pty Ltd. 90pgs.

Cohen, A. and K. Wilber, A Living Experiment in Conscious Evolution: The Guru and the Pandit: Dialogue XIV, in *What is Enlightenment: redefining Spirituality for an Evolving World.* Issue 35, Jan-March 2007. p. 46-58.

Coutu, D. (2002). How resilience works. *Harvard Business Review*, 2002. 80(5): p. 46-55.

Cox, D. (2005). *Integrity, Commitment and Indirect Consequentialism*, in *University of Queensland*. Brisbane. p. 14. Unpublished.

Dakers, J., ed. (2006a). *Defining Technological Literacy: Towards and Epistemological Framework*. Palgrave-Macmillian: New York. 330pgs.

Dakers, J. (2006b). Towards a Philosophy for Technology Education, J. Dakers, Editor. Palgrave-Macmillian: New York. pgs 145-158 in Dakers, J., ed. *Defining Technological Literacy: Towards and Epistemological Framework*. Palgrave-Macmillian: New York. 330pgs.

Daly, H. and J. Cobb (1989). *For the Common Good: Redirecting the Economy towards Community, the Environment and a Sustainable Future*. Boston: Beacon Press. 470pgs.

Dator, J., ed. (2002). *Advancing Futures: Future Studies in Higher Education*. Praeger: Westport. 400pgs.

Dave R. (1975). in *Developing and Writing Behavioural Objectives* (R J Armstrong, ed.) Educational Innovators Press.

Davison, Ian. & Noble, William. (1993).Tools and language in human evolution. pgs363-388 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Dawkins, R. (1986). *The Blind Watchmaker*. London: Penguin. 340pgs

Dawkins, R. (1989). *The Selfish Gene*. Oxford: Oxford University Press. 352pgs.

De Bono, Edward. (1990). *I Am Right, You Are Wrong: From This to the New Renaissance: From Rock Logic to Water Logic* . Penguin.

De Castell, S. and J. Jenson, *Serious Play*. Journal of Curriculum Studies, 2002. **35**(6): p. 649-665.

Dewey, J. (1897). My Pedagogic Creed. *The School Journal*. **LIV**(3): p. 77-80.

Diamond, J. (2005). *Collapse: How Societies Choose to Fail or Survive*. Camberwell, Victoria. 575pgs.

Dick, B. (2000). *Grounded Theory: a thumbnail sketch*. Interchange. 28pgs. Dick offers wide referencing and draws strongly from Glasser (1995 etc).

Dick, B. (1984). *Notes on the Second Watershed*. Centre for Continuing Education. Australian National University.

Dick, B., (2003). *Whatever Happened to Bureaucracy? Why we have moved to team structures, why they often don't work, why we can't go back, and what we can about it*. Brisbane: Interchange. 80pgs.

Dick, B. (2005). *Complex Social Systems and their Facilitation*. Cynefin: Brisbane. p.6.

Dick, B. (2007). *What can grounded theorists and action researchers learn from one another?* in *Handbook of grounded theory*, Bryant, A and Charmaz, K. Editors. Sage. Pgs 370-388.

Dingle, T. (1988). *Aboriginal Economy*. Melbourne: McPhee Grible/Penguin. 70pgs.

Edwards, B. (1993). *Drawing on the Right Side of the Brain* (London: Harper Collins)

Edwards, B. (1995). *Drawing on the Artist Within: A Guide to Innovation, Invention, Imagination and Creativity*. (London: Harper Collins)

Eisler, R. (1987). *The Chalice and The Blade: Our History, Our Future.* New York: Harper & Row.

Emery, F. (1993). *Participative Design for Participative Democracy*. Canberra: Australian National University. 320pgs.

Endenburg, G. (1998). *Sociocracy: The organisation of decision-making with 'no objection' as the principle of sociocracy*. Delft, Netherlands: Eburon. 264pgs.

Endenburg, G. (1998). *Sociocracy: As social design. * A rationale for a new social design for society * What's wrong with democracy? * The design in operation in a business * The business enterprise as society*, ed. ***. Delft, Netherlands: Eburon. 216pgs.

Endenberg, G. (2006). *What Kind of form for organisations? (1) the empty form for business, education and society. (2) necessity of time-independent developing (3) the*

sociocratic circle-organisation as a basis. International Sociocratic Centre: Holland. 100pgs. http://www.sociocratie.nl/

Fairtlough, G. (2005). *The Three ways of Getting Things Done: Hierarchy, Heterarchy and Responsible Autonomy Organisations*. Triarchy press. 110pgs.

Falk, Dean. (1993). Sex differences in visuo-spatial skills: Implications for hominid evolution. 1993. pgs 216-229 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Ferguson, Charles. (1966). *The Male Attitude: What Makes American Men Think and Act as They Do?* Toronto: Little, Brown and Company.

Florida, R., (2003). *The Rise of the Creative Class - and how its transforming work, leisure, community and everyday life*. Melbourne: Pluto Press. 400pgs.

Foucault, M. (1980). *Power/Knowledge: Selected Interviews and Other Writings 1972-77*. New York. Pantheon Books.

Freire, P. (1972). *Pedagogy of the Oppressed.* London, Penguin.

Galtung, J. (2004). *On the Social Costs of Modernisation: Social disintegration, anomie and social development*, in *The Causal Layered Analysis (CLA) Reader*, S. Inayatullah, Editor. (2004). Tamkang University: Taipei. p. 84-118.

Galtung, J. and S. Inayatullah, eds. (1997). *Macrohistory and Macrohistorians: Perspectives on Individual, Social and Civilizational Change*. Praeger: Westport. 260pgs.

Gawler, I. (2003). *Meditation Pure and Simple*, Ian Gawler and Associates. CDRom.

Goody, J. (1977). *The Domestication of the Savage Mind*, Cambridge: Cambridge University Press.

Falk, Dean. (1993). Sex differences in visuo-spatial skills: Implications for hominid evolution. 1993. pgs 216-229 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Gibson, Kathleen. (1993). General Introduction: Animal minds, human minds. 1993. pgs 3-19 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Gibson, K. and T. Ingold, eds. *Tools, Language and Cognition in Human Evolution.* (1993). Cambridge University Press: Cambridge. 480pgs.

Howard, Gardner. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. Basic Books

Glaser, Barney G., ed. (1995). *Grounded theory 1984-1994*, Volume 1. Mill Valley, Ca.: Sociology Press. [This and its companion Volume 2 between them carry a large collection (48) of papers from a variety of authors on a variety of aspects of grounded theory. Many case studies are included]

Gramsci. A. (1957). *The Modern Prince and other writings*. Translated with an introduction by Louis Marks. London: Lawrence & Wishart. Pgs192.

Gramsci, A. (1992). *Prison Notebooks*. Volume I. Edited with an Introduction by Joseph A. Buttigieg. Translated by Joseph A. Buttigieg and Antonio Callari. New York: Columbia University Press. Pp. xxiii-608. This is the English translation of the Italian 'critical edition' of the Quaderni del carcere, edited by Valentino Gerratana and published in 1975 in four volumes by Einaudi. This volume contains the texts of Notebooks One and Two.

Grasby, A. and M. Hill. (1988). *Six Australian Battlefields: The black resistance to invasion and the white struggle against colonial oppression*. Sydney: Angus and Robertson. 325pgs.

Habermas, J. (1987). *The Hermeneutic Claim to Universality*, in *Interpreting Politics*, M. Gibbons, Editor. New York University Press: New York. p. 175-202.

Habermas, J. (1992). *Moral Consciousness and Communicative Action*. Vol. Translated by Lenhardt, Christian Nicholsen, Shierry. Cambridge UK: Polity Press. 225pgs.

Habermas, J. (1997). *Between Facts and Norms*. 1997, Cambridge: Polity Press. 650pgs.

Hase, S. and C. Kenyon. (2000). *From Androgogy to Heutagogy.* utilBASE, http://ultibase.rmit.edu.au/Articles/dec00/hase2.htm#heutagony

Heidegger, M. (1977). *The Question Concerning Technology* [Lovitt, W. translator]. New York: Harper and Row.

Hewes, Gordon. (1993). A history of speculation on the relation between tools and language. 1993. pgs 20-32 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. Cambridge University Press: Cambridge. 480pgs.

Homer-Dixon, (2007). T., *The Upside of Down: Catastrophe, Creativity and the Renewal of Civilisation.* Canada: Alfred A. Knopf Canada / Random House of Canada Limited. 420pgs.

Huston, T. (2006). Creating the Future: the guru and the pandit - Andrew Cohen and Ken Wilber - excerpts from a dialogue, in *What is Enlightenment? redefining spirituality or an evolving world*. p. 42-56.

Ichazo, O. (1993). Master Level Exercise: Psychocalisthenics.

Illich, I. (1973). *Tools for Conviviality* (London: Calder & Boyars).

Inayatullah, S. (1998). Causal Layered Analysis: Poststructuralism as Method. *Futures*, **30**(8): p. 815-829.

Inayatullah, S. (2002). *Understanding Sarkar - The Indian Episteme, Macrohistory and Transformative Knowledge*. Leiden: Brill. 350pgs.

Inayatullah, S., ed. (2004). *The Causal Layered Analysis (CLA) Reader - Theory and Case Studies of an Integrative and Transformative Methodology*. Tamkang University: Taipei. 570pgs.

Inayatullah, S. and P. Wildman. (1998). *Futures Studies: Methods, Emerging Issues and Civilisational Visions - AV CDRom*. CD Rom (Multi Media) Prosperity Press: Brisbane.

Ingold, Tim. (1993a). Tool-use, sociality and intelligence. pgs 429-445 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Ingold, Tim. (1993b). Tools Techniques and Technology. pgs 337-345 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Ingold, Tim. (1993c). Epilogue: Technology, language, intelligence: a reconsideration of basic concepts. pgs 449-472 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Ingold, Tim. (1993d). Introduction to part 1: Relations between visual-gestural and vocal-auditory modalities of communication. 1993d. pgs 35-42 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Ingold, Tim. (1993e). Epilogue: Technology, language, intelligence: a reconsideration of basic concepts. pgs 449-472 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Ingold, T. (2000). *The Perception of the Environment: Essays on livelihood, dwelling and skill*. London: Routledge. 500pgs.

James. W. (1902). *The Varieties of Religious Experience: A Study in Human Nature*

Jantsch, E. (1967). *Technological Forecasting in Perspective*. Paris: OECD.

Jantsch, E. (1975). *Design for Evolution: Self-Organisation in the Life of Human Systems*. New York: George Braziller. 320.

Jin, Zhouying (2005). *Global Technological Change – from hard technology to soft technology*. Intellect. (Bristol, UK). 300 pgs

Jitendrananda, D. and P. Wildman. (2003). *Here, Together, Now - A Neo-Humanist Guidebook for Human Development [including development of a sustainable People's Economy]*. Auckland: Prosperity Press. 200 also avail as CDRom.

Kauhanen, E. and E. Noppari. (2007). *Innovation, Journalism and Future: Final report of the research project Innovation Journalism in Finland*. Journalism Research and Development Centre, University of Tampere: Helsinki. 92pgs

Kemmis, S. and McTaggart, R. (1988). *The Action Research Planner*, Deakin University Press, Geelong.

Knowles, Malcom (1950). *Informal Adult Education*, Chicago: Association Press, pages 9-10

Knowles, M. (1970). *The Modern Practice of Adult Education: Andragogy versus Pedagogy,* Associated Press, New York.

Koestler, A. (1978). *Janus - a summing up*. New York: Vintage. 300pgs.

Kohlberg, L. (1976). Moral Stages and Moralisation: The Cognitive-Development Approach. *Moral Development and Behaviour: Theory, Research and Social Issues.* T. Lickona, Holt, Rinehart and Winston**:** pgs34-35.

Kolb, David. (1984). *Experiential Learning - Experience as the source of learning and development*. New Jersey: Prentice Hall. 255pgs.

Korten, D. (2006). *The Great Turning: From Empire to Earth Community*. BK Currents. The Great Turning is a work of amazing scope and depth. This is a wise and much needed book that shows we can create cultures where our enormous human capacities for joy, caring, and cooperation are realized.—Riane Eisler, also relevant http://www.peakmoment.tv/index.htm - Daivd Korten interview

Kuhn, Thomas. (1970). *The Structure of Scientific Revolutions*. Chicago. University of Chicago Press.

Laszlo, E. (2004). *Science and the Akashic Field - an Integral Theory of Everything*. Rochester, Vermont: Inner Traditions. 200.

Lawlor, R. (1991). *Voices of the First Day: Awakening in the Aboriginal Dreamtime*. Vermont: Inner Traditions. 350pgs.

Lee-Martin, J. (2006) *Bushie learning, bushie teaching: is Australia's future still emerging from the wide brown land?* in *Future News*. p. 7.

Levi-Strauss, C. (1966). *The Savage Mind*. London. Weidenfeld & Nicolson.

Lietaer, B. (1997). International Forum on Globalisation. Third World Network. *IFG News*, Issue Two, Summer 1997. http://www.twnside.org.sg/title/nar-cn.htm

Lloyd, R., J. Oatham, and M. Hammer. (2007). Global Accountability Report - for IGO's, INGO's, TNC's. One World Trust [http://www.oneworldtrust.org/]: London. 4pages. [http://www.oneworldtrust.org/documents/OWT_GAR_07_Briefing_paper_4pp_colour_lo-res.pdf for summary report]

Lytoard, J. (1984). *The Post modern Condition: A Report on Knowledge* [translated Bennington, G and Massumi, B]. Minneapolis: University of Minnesota Press. 'Knowledge is and will be produced in order to be sold, it is and will be consumed, in order to be valorised in a new production; in both cases, the goal is exchange' pg4.

Mowaljarlai, D.i. and S.i. Lobez. (1995).*The Law Report - Aboriginal Law*, in *The Law Report 31-10-1005*. ABC: Canberra.

Naess, Arne. (2005/1984) Cultural Anthropology: A New Approach to the Study of How to Conceive Our Own Future (1984 unpublished). *The Trumpeter - Journal of Ecosophy* [http://trumpeter.athabascau.ca/index.php/trumpet/article/view/43/38] 21(1): pgs59-60. [There are traits of *some* non-industrial cultures that are highly laudable, or at least positively interesting from points of view common in our societies. For instance: Naess (2005/1984:59-60) in his expounding on the 'long range' deep ecology sees it as crucial to our human futures. He identifies some 12 traits of such cultures that he considers directly relevant to the 'West' today:
1. Work-hours very low, in some cultures about 3 hours a day - time for ecocitizen pursuits
2. Different generations work and learn together - *intergenerational working and learning (kids and adults learning)*
3. Sharing children in big families or groups, avoidance of family isolation - *extended families*
4. Local self-reliance - *community eco-nomy*
5. Absence of big hierarchies of power - *power with rather than power over*

6. Absence of haste, more dwelling in situations by enjoying intrinsic values - *slow societies lower cost of labour alternative value systems*
7. Non-mechanistic view of man and nature - *technecial V's technical*
8. Great and frequent dances, feasts in which all join - *celebratory, self realisation*
9. Time for artistic and (broadly defined) knowledge creation - *art-ificer and techne*
10. High level of mutual help, sharing and community (Gemeinschaft) - *mutual aid society*
11. Ecologically sustainable economy and habitation - *ecol incorporates socio and econ*
12. High general cultural competence and participation - demos and beyond
[adapted - *added by PW*]
Observation: clearly no's 4, 5, 6, 7, 9 directly relate to the Artificer Principle]

Marmot, M., & Wilkinson, R. (Eds.). (1999). *Social determinants of health. New York:* Oxford University Press. Also see Australian Broadcasting Commission http://www.abc.net.au/science/slab/stress/whithall.htm ; Australian Doctors Reform Society http://www.drs.org.au/wwwboard/messages/199.html

Mahon, P., (1985). *Verdict on Erebus*. Auckland: Collins. 296pgs

Maslow, A. (1943). *A Theory of Human Motivation*. http://en.wikipedia.org/wiki/Maslow%27s_hierarchy_of_needs .

Maturana, H., (1970). *Autopoiesis, Structural Coupling and Cognition: A history of these and other notions in the biology of cognition*. University of Illinois: Urbana. 30pgs.

McGrew, William. (1992). *Chimpanzee Material Culture: Implications for Human Evolution*. New York, Cambridge University Press

McGrew, William. (1993). The Intelligent use of tools: Twenty propositions. pgs 151-170 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

MacLeod, G. (1991). *Cheticamp - economic co-operation in the town of Cheticamp in Nova Scotia, Canada*. Tompkins Institute University College of Cape Breton: Sydney, Nova Scotia, Canada. This is one in a series of six videos on the topic.

Mochelle, R. (2001). *Towards a New Constitutionalism: Developing Global Civic Responsibility through Participation in World Constitutional Deliberation*. http://adt.lib.rmit.edu.au/adt/public/index.html RMITU (Royal Melbourne Institute of Technology University). Doctoral Dissertation. Unpublished

Mochelle, R. (1994). *The Future Meaning of Work? Enabling Discourse on Work through Post-Conventional Citizenship Education*. RMIT.

Modis, T. (2003). *The Limits of Complexity and Change.* The Futurist. **37**(3): p. 26-32.

Molina, L. (2005). *Red tape out of control*, in *Courier Mail: 24-05-2005*. Brisbane. 21pgs.

Morrissey, K. (2004). *Governance guidelines prove hard to swallow*, in *Courier Mail (Friday, 17-12-2004)*. Brisbane. 37pgs.

Mott, Bradford; Callaway, Charles; Zettlemoyer, Lee; Lee, Seung; Lester, James (2000). *Towards Narrative-Centred Learning Environments*, in *Joint Web Based Publishing*. Multimedia Laboratory, Department of Computer Science, North Carolina State University. p. 5.

Mott, Bradford; McQuiggan, Scott; Lee, Seunyoung; Lee, Seung; Lester, James (2006). *Narrative-Centred Environments for Guided Discovery Learning*, in *Joint Web based publishing effort*. In Agent-based Systems for Human Learning. 2006, Proceedings of the AAMAS 2006 Workshop on Agent-Based Systems for Human Learning, pp.22-28: Hakodate, Japan.

Moustakas, C. (1990). *Heuristic Research: Design, Methodology, and Applications*. Newbury Park: Sage. 128pgs

NAGLEI. (1987a). *Local Employment Initiatives: a strategic approach (Report of The National Advisory Group on Local Employment Initiatives (NAGLEI))*. Canberra: AGPS. 6 volumes 750 pages.

NAGLEI. (1987b). *Sources of Alternative Finance for Local Employment Initiatives in Australia*. PG Fitzgerald and Associates (published by AGPS).

NAGLEI. (1987c). *Sources of Conventional Finance for Local Enterprise Creation*. Peat, Marwick, Mitchell Services (published by AGPS).

Naisbitt, John (2001) *High Tech/High Touch*. Technology and our Accelerated Search for Meaning. Nicholas Braely Publishing.

Nussbaum, M.. (1994). *The Therapy of Desire: Theory and Practice in Hellenistic Ethics*. Princeton New Jersey: Princeton University Press. 560pgs.

Ong, W. (1982). *Orality and Literacy: The Technologising of the World*. London. Methuen

Quick, T. (2006).*Holons or Gestalts? A Response to Wilber and Zimmerman.* The Trumpeter [http://trumpeter.athabascau.ca/index.php/trumpet/issue/view/25], **2**(2). pgs9-25

Piaget, J. (1955). *Growth of logical thinking* (with Bärbel Inhelder), London: Routledge & Kegan Paul, 1958 including Paiget's 1955 piece.

Piaget, J. (1967). *Biology and knowledge,* Edinburgh: Edinburgh University Press, 1971 including Piaget's 1967 piece.

Piaget, J. (1983). Piaget's theory. In P. Mussen (ed) *Handbook of child psychology,* Vol.1. New York: Wiley.

[Also see web resources for Piaget]

Plotkin, Henry. (1993). *Darwin, Machines and the Nature of Knowledge.* Cambridge, Mass. Harvard University Press. Pgs161-178

Pope, R. and R. Todonai. (1988). *Two Bob's Worth*. Loxton, SA: Science-Art Research Centre. 130pgs.

Pope, R. (2005). *The True Meaning of the da Vinci Code*. Murwillumbah: Science-Art Research Centre. 155pgs.

Prisig, R. (1974). *Zen and the Art of Motorcycle Maintenance: An Inquiry into Values.*

Reid, A., L. Teamey, and J. Dillon. (2002). Traditional ecological knowledge for learning with sustainability in mind. The Trumpeter http://trumpeter.athabascau.ca/index.php/trumpet/article/view/124/137 . 18(1): pgs1-27.

Reynolds, Peter. (1993). The complementation theory of language and tool use. pgs 407-428 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. Cambridge University Press: Cambridge. 480pgs.

Rorty, R. (1980). *Philosophy and the Mirror of Nature*. UK: Basil Blackwell. 400pgs.

Rousseau, J (1783). *Discours sur l'originie et les fondements de l'inegalite parmiles hommes.* Tome II euvres posthumes. London.

Rowe, S. (1997). The Mechanical and the Organic: Virtual Reality and Nature. *The Trumpeter - Journal of Ecosophy* [http://trumpeter.athabascau.ca/index.php/trumpet/article/view/202/273], 14(3): pgs1-12.

Saul, J.R. (2005). *The Collapse of Globalism and the Reinvention of the World*. Camberwell, Victoria, Australia: Penguin Books (Australia). 300pgs

Schifferes, S. (2007). *The Triumph of Lean Production*. [cited; Available from: http://news.bbc.co.uk/2/hi/business/6346315.stm

Schumpeter, Josef A. (1942): *Capitalism, Socialism, and Democracy*. New York: Harper & Brothers.

Seneca, (30AD). *De Ira* [Seneca - the younger - 3BC to 65AD - writing around 30AD]

Sheldrake, R. (1994). *Seven Experiments that could Change the World: The Do-It-Yourself Guide to Revolutionary Science*. London: Fourth Estate. 270pgs.

Simpson E. J. (1972). *The Classification of Educational Objectives in the Psychomotor Domain.* Washington, DC: Gryphon House.

Smith, R. (2002). Sustainable learning. *The Trumpeter - Journal of Ecosophy* [http://trumpeter.athabascau.ca/index.php/trumpet/article/view/125/139]. 18(1): pgs1-9.

Stanger, M. (2004). *Permission to Shine - a journey of recovery and discovery*. Brisbane: Published by the Author. 200pgs.

Steele, E., R. Lindley, and R. Blanden. (1998). *Lamarck's Signature: How retrogenes are changing Darwin's natural selection paradigm.* 1998, Sydney, St Leonards: Allen and Unwin. 286pgs.

Studley, J. (1998). Dominant Knowledge Systems and Local Knowledge. *Mountain Forum Online Library Document*. http://www.mtnforum.org/resources/library/stud98a2.htm . http://trumpeter.athabascau.ca/index.php/trumpet/article/view/124/137 (actual article)..

Taylor, S. (2004). *Out of Time - The five laws of psychological time and how to transcend them*. Nottingham: Paupers Press. 160pgs.

Taylor, S. (2005). *The Fall: The evidence for a Golden Age, 6000 years of insanity, and the dawning of a new era.* Winchester: Circle Books. 340pgs.

Thomson, M. (1995). *The Complete Blokes and Sheds; including stories from the shed*. Sydney: Angus&Robertson. 280pgs.

Turnbull, D. (2003). *Masons, Tricksters and Cartographers*. London: Routledge. 260pgs.

Turner, Tom. (1996). *City as landscape: a post-postmodern view of design and planning*. Spon Press. 250pgs

Varela, F. (1987). *Laying Down a Path in Walking*, in *Gaia: A Way of Knowing: Political Implications of the New Biology*, W. Thompson, Editor. Inner Traditions-Lindfarne Press: Great Barrington, MA. Esp. Ch 2, 48-64.

Visalberghi, Elisabetta. (1993). Capuchin monkeys: A window into tool use in apes and humans. pgs 138-150 in Gibson, K. and T. Ingold, eds. *Tools, Language and Cognition in Human Evolution*. 1993, Cambridge University Press: Cambridge. 480pgs.

Watts, Rob. (1996). Citizenship in the Age of Precarious Employment. Paper, presented at the *Conference on Citizenship* 17-18 June Latrobe University Melbourne. Quote located in: Heath, P. (1999). Citizenship/transformative pedagogy: a critical space. In *HERDSA Annual International Conference*, 1 (pp. 17). Melbourne: HERDSA [Higher Education Research and Development Society of Australia].

Watzlawick, P. (1984). *Invented Reality: How Do We Know What We Believe We Know?* ed. P. Walzlawick.

Welch, Ross. (2008). *The Omni Trio system of the Artificer | eNuffer | Elder* also developed in conjunction with the application of the Omni Trio system to drumming in 'Fun with Drums' Available from the author at roscowelch@hotmail.com

Werner, H., S. Barten, and M. Franklin. (1978). Developmental Processes: Heinz Werner's Selected Writings (Cognition, Language, and Symbolization, Vol 1)

Wertheim, M. (1997). Pythagoras' Trousers: God, Physics and the gender Wars. London: Fourth Estate. 300pgs.

Whitehead, A. (1929). *Process and Reality*. New edition 1978, New York: Mcmillan.

Wilber, K. (1995). *Sex, Ecology, Spirituality: The Spirit of Evolution*. Boston, Shambhala.

Wilber, K. (2000). *A Theory of Everything - an integral vision for business, politics, science and spirituality*. Boston, Shambala.

Wildman, A. (2000). *Live Like a Wildman - three sections - Eat Like a Wildman (Diet), Play Like a Wildman (Exercise/Meditation), Think Like a Wildman (Motivation/Self-Esteem)*. Brisbane: Anita Wildman publications. 60pgs.

Wildman, P. (1975). *A Study of Broad Issues Involved in the Impact of the Communication Revolution on the Location of Economic Activity*. University of Queensland Faculty of Economics: Brisbane. 200pgs.

Wildman, P. (1976). *Meaning in Technology*. Occasional Paper. Griffith University: Brisbane. 20pgs.

Wildman, P. (1993). *Growing Your Own Community Economy*. Brisbane: Prosperity Press. 56.

Wildman, P. (1993). and (1997). *Communities Working and Learning: The philosophical, epistemological and methodological underpinnings of a community economic development process that seeks to increase sustainable local employment and training opportunities by linking local economic development and community development through action learning and action research.* IMC International Management Centre - Asia Pacific region; Southern Cross University Australia. Doctoral Dissertation originally presented in 1993 to International Management Centres. 300 pgs, unpublished

Wildman, Paul. (1995). Research by Looking Backwards: Reflective Praxis as an Action Research Model. *Action Research Case Studies Newsletter (ARCS)* (published by - ALARPM, Prosperity Press and Interchange), 3(1): p. 20-47.

Wildman, P. (1996). Dreamtime Myth: History as Future (interpreting an Australian Aboriginal view of history as future). *New Renaissance*, **7**(1): p. 16-19.

Wildman, P. (1999). Debacle or Design; Review of 'The Depression as the Transformation of the Capitalist System'. *Journal of Futures Studies,* **4**(1): p. 91-98.

Wildman, P. (1999). *From the Monophonic University to the Polyphonic Multiversities*, in *Universities in the Future: Foresight Series*, M. Thorne, Editor. Department of Trade and Industry: London. p. 241-247.

Wildman, P. (1999). Blood Sweat and Gears: Some present implications of cloning and other life futures, in *Australian Rationalist. .* p.33-37.

Wildman, P. (1999). *Futures between Communitas and Corporatas*, in *Knowledge Base of Futures Studies Vol 4 CDRom*, R. Slaughter, Editor. Futures Studies Centre: Brisbane. p. Vol 4, under 'view authors by name' W.

Wildman, P. (2000). *At the Edge of Knowledge: Toward Polyphonic Multiversities*, in *The University in Transformation: Global Perspectives on the Futures of the University*, S. Inayatullah and J. Gidley, Editors. Bergin & Garvey: Westport US. p. 105 -111.

Wildman, P. (2001). 'Anticipating Emerging Issues: Reflections from a futurist.' *Journal of Futures Studies.* **6**, pgs. 137-152.

Wildman, P. (2000a). Blood Sweat and Gears: Tomorrows Life Forms Today. *New Renaissance* **9**(3): ogs.8-10.

Wildman, P. (2000b). Life Futures: An Initial Taxonomy of Terrestrial and Non-Terrestrial Forms of Life. *Journal of Futures Studies* **4**(2): pgs. 93-108.

Wildman, P. (2002a) Activist Versus Academic writing: towards a richer conversation. *Futures.* **34**: p. 219-227.

Wildman, P. (2002b). *Developing Grounded Theory into Local Theory - through an Action Research Process aimed at developing a community economy to support exemplar projects.* Brisbane. 15pgs.

Wildman, P. (2002c). The Litany of Death: a deep futures critique of the Australian Royal Commission into Aboriginal Deaths in Custody. *Futures*. **34**: p. 571-581.

Wildman, P. (2002d) Learning from the Litany of Death: Using Deep Futures to move from Aboriginal Deaths in Custody to Participative Governance. *Futures Bulletin*. **27**(3): p. 1, 3-7, 24.

Wildman, P. (2004a). *Pangogical Learning - Artificer, and Experiential Learning Views and Proposal to Establish an Artificer Learning Centre*. 2004, Kalgrove Pty Ltd: Brisbane. 30pgs.

Wildman, P. (2004b). *Identifying Australia's Meme Complex - Learning's - a personal and professional futures perspective on a generation of experiencing the systemic blockages in working for socio-economic change in Australia*. Prosperity Press: Brisbane.13pgs.

Wildman, P. (2004c). *Bush Mechanic and Artificer Learner Defined in Simple Text*. Prosperity Press: Brisbane. 6pgs. [2004c]

Wildman, P. (2004d). *Uncovering Paradigmatic Racism - A Deep Futures Critique of the Australian Royal Commission into Aboriginal Deaths in Custody*, in *The Causal Layered Analysis (CLA) Reader - Theory and Case Studies of an Integrative and Transformative Methodology*, S. Inayatullah, Editor. Tamkang University: Taipei. p. 283-200.

Wildman, P. (2005a). *The Corporate Bush Mechanic (CBM) - possibility or absurdity: An exploration of the potential and design for the installation of a CBM system in The Flight Centre (TFC)*. Kalgrove Pty Ltd: Brisbane. p. 20.

Wildman, P. (2005b). *The Origins of the Separation of Thinking and Doing*. Kids and Adults Learning Pty Ltd - the Bush Mechanics Institute Report No.1: Brisbane. 6pgs.

The Bush Mechanic Action Research Project - complete list of publications
The Bush Mechanic Action Research Project - complete list of auxiliary publications

Wildman, P., *[BMARP1] Zen and the Art•ifice of Ingenuity: An action research report into the practice and prospectivity of the Artificer/Bush Mechanic (Australian term) in the process of Exemplar System Development (ESD)*. 2008, KALGROVE/Prosperity Press - Bush Mechanic Action Research Project (BMARP): Report No. 1: Brisbane. 320pgs

Wildman, P. (2007). *[BMARP2] Bush Mechanic Action Research Project - Coding Outcomes from applying Grounded Theory to identify key attributes of a Artificer/Bush Mechanic Learner as an exemplar of Anticipatory Action Learning/Futuring/Artifice Learning with a view to establishing the basic principles for further development into a a Local Theory thereof*. Kalgrove Pty Ltd - Bush Mechanics Institute - Bush Mechanic Action Research Project (BMARP): Report No. 2: Brisbane. 35pgs.

Wildman, P., *[BMARP3] Broadening the Impact of the Bush Mechanic through the Community Artifice Innovation Process (CAIP): A CAIP is a Futures Research Process for developing a host positive context for Bush Mechanicing and Artificing based on the Our Innovative Community Economy workshop in three sections:*
(a) Background Information to explicate what is CED and how to undertake it;
(b) Action Learning Activity Guide - which establishes several activities necessary to achieve CED as per (a) &

(c) Work Book - in which to record the outcomes of, & learning's from the activities as per (b). 2007, KALGROIVE Pty Ltd - Bush Mechanics Institute- Bush Mechanics Research Project: Report 3: Brisbane. 45pgs

Wildman, P. (2007). *[BMARP4] The Bush Mechanic and Citizenship*. KALGROVE Pty Ltd - the Bush Mechanics Institute - Bush Mechanic Action Research Project (BMARP): Report 4: Brisbane. 6pgs.

Wildman, P. (2007). *[BMARP5] Exploring Bureaucracy and identifying a Bushy alternative in Do-ocracy*. KALGROVE Pty Ltd, Bush Mechanics Institute - Bush Mechanic Action Research Project (BMARP): Report 5: Brisbane.11pgs.

Wildman, P. (2007). *[BMARP6] Emergent Macro Rationales in favour of Artificing*. KALGROVE Pty Ltd - the Bush Mechanics Institute - Bush Mechanic Action Research Project (BMARP): Report 6: Brisbane. 2pgs.

Wildman, P. (2007). *[BMARP7] Index and Contents Links to the Bush Mechanic Research Program (BMARP) Reports*. KALGROVE Pty Ltd. Bush Mechanics Institute - Bush Mechanic Action Research Project: Report No.7: Brisbane. 2pgs.

Wildman, P. (2007). *[BMARP 8] The Exemplar Project as Esoteric Lens: Bushy as Esoteric Thesis*. KALGROVE Pty Ltd. Bush Mechanics Institute - Bush Mechanic Action Research Project: Report No.8: Brisbane. 5pgs.

Wildman, P. (2007) *[BMARPAux1] The Artilect*, in *Auxiliary Paper No. 1*. Kids and Adults Learning Pty Ltd: Brisbane. 30pgs.

Wildman, P. (2007). *[BMARPAux2] 'Othering' Action - The Origins of the philosophic separation of Thinking and Doing*, in *Auxiliary Paper No. 2*. Kids and Adults Learning Pty Ltd - the Bush Mechanics Institute Report No.2: Brisbane. 12pgs

Wildman, P. (2007). *[BMARPAux3] Exploring the application of Grounded Theory and its extension into Local Theory - through a Bush Mechanic Action Research Process aimed at developing and supporting exemplar projects. Auxiliary Paper No3*. Kids and Adults Learning Pty Ltd: Brisbane.15pgs.

Wildman, P. (2007). *[BMARPAux4] Heutagogical Learning - Artificer, and Experiential Learning Views and Proposal to Establish an Artificer Learning Centre*. Kalgrove Pty Ltd: Brisbane. 30pgs.

Wildman, P. (2007).*[BMARPAux5] Qualitative Research Methodologies and the Artificer ~ Reflective Praxis, Heuristic Inquiry, Causal Layered Analysis ~ as QRM's for application in the Bush Mechanic Action Research Project* in *Auxiliary Paper No. 5*. Kids and Adults Learning Pty Ltd: Brisbane. 8pgs.

Wildman, P. (2007). *[BMARPAux6] World Bush Mechanic Volunteers*, in *Auxiliary Paper no. 6*. Kids and Adults Learning Pty Ltd: Brisbane. 3pgs.

Formal Artificer Learning/Bush Mechanic Publications by Paul Wildman Exoteric | Esoteric

Wildman, P.(2005c). *Bush Mechanics: futuring the Australian way*. Future News, Australian Futures Foundation. (September - page 7): p. 1.

Wildman, P. (2005d) *Futuring and the Artifice of Ingenuity.* Futures Bulletin - World Futures Studies Federation, **30**(2&3): p. 10-11, 21-23.

Wildman, P. (2005e) *Exploring the application of Grounded Theory and its extension into Local Theory - through a Bush Mechanic Action Research Process aimed at developing and supporting exemplar projects*. Brisbane. p.15.

Wildman, P. (2007). How Futuring Bush Mechanics seek to transform the world. *Futures*, **39**: p. 569-582.

Wildman, P. and Baker, G. (1985). *The Social Impact Assessment Handbook*. Sydney: Social Impacts Publications

Wildman, P. and Cundy, L. (2002). The Esoteric Thesis: Making inner sense of the ineffability of knowledge obtained during the exoteric research process. *ALAR Journal (Action Learning and Action Research*), **7**(2): p. 3-21.

Wildman, P. and E. Hadkins. (2005) Bush Mechanics - artificing a future we can live with. *Journal of Futures Studies*. **10**(1): p. 91-100.

Wildman, P. and Inayatullah, S. (1996). Ways of Knowing and the Pedagogies of the Future. *Futures*. 28(8): p. 723-740.

Wildman, P, and Miller, I. (2004). *Artificer Learning through the Demiurgic Field of Dreams*. Joint web publication by Iona Press and Prosperity Press: Brisbane. p. 20. http://creativity.chaosmagic.com/whats_new.html

Wildman, P. and I. Miller. (2006). *Practalising the DemiUrgic Field through Active Practical Wisdom - how the artificer seeks to transform the world.* Journal of Chaos Philosophy. Web Journal http://chaosophy.50megs.com/whats_new_2.html : p. 15pgs.

Wildman, P. and B. Blomeley. (1998). Dreamtime Myth: Exploring History as Future through the Dreamtime Stories of the Magani Whirlpools of Torres Strait and Gooriala the Rainbow Serpent of Cape York, in *Futures Studies: Methods, Emerging Issues and Civilisational Visions*, S. Inayatullah and P. Wildman, Editors. 1998, Prosperity Press [multi media CDRom]: Brisbane. p. 500 pgs equiv [on CDRom].

Wildman, P., I. Plowman, D. Wyatt., and S. Taylor. (2007). *'eNuffing' when enough is eNuff!? - a concept paper*. 2007, Hot Futures Group - Brisbane: Brisbane. p. 20. [available from the authors]

Wildman, P. and Schwencke, H. (2003). *Your Community Learning - action learning circles for learning and earning through community economic development*. Community Learning Initiatives and Prosperity Press: Brisbane. Multi Media CDRom.

Wilson, F.(1998). *The Hand - How its use shapes the brain, language, and human culture*. New York: Vintage Books. 400pgs.

Womack, J. and D. Jones. (1996). *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*. New York: Simon and Schuster. 350pgs.

Woozley. A. (1949) *Theory of Knowledge* (repr. 1966) also see J. Dancy (1985). *Introduction to Contemporary Epistemology*; A. J. Ayer (1956). *The Problem of Knowledge* (repr. 1988).

Wright, R. (2004). *A Short History of Progress*. Melbourne: Text Publishing. 200pgs.

Wundt, Maximilian. (1904). *Principles of Physiological Psychology [translated by Edward Titchener]*.

Wynn, Thomas. (1993). Layers of thinking in tool behaviour. pgs 389-406 in Gibson, K. and Ingold, T. eds. *Tools, Language and Cognition in Human Evolution*. Cambridge University Press: Cambridge. 480pgs.

Zimmerman, M.T.T. (2004). *Humanity' Relation to Gaia.* The Trumpeter [http://trumpeter.athabascau.ca/index.php/trumpet/issue/view/25] **20**(1): p. 4-20.