An Ecological "Landscape" Approach to the Noosphere

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Abstract

In 1986, one of the authors published a "comprehensive proposal for an integrated national information system for resource planning, design, and management, using landscape and ecology as the integrators in a holistic approach to database management". Since then, much water has flowed under the bridge, and the time has come to actualize this pioneer and visionary scientific undertaking, and to robustly integrate it with the notions of *Noosphere*, *Meaning* and *Values*. This work comes at a time of great need to overcome humanity's existential risks, like climate change, nuclear wars, destructive artificial intelligence and terrorism, amongst other challenges. The authors are convinced that the harmonization of environmental, philosophical, theological, scientific, cognitive, psychophysiological and particularly, *Economic*, *Ecologic* and *Ethical* (*the three Es*) dimensions of life, is crucial to find solutions for better scenarios to overcome risk extinction, while raising human living and health standards, and general wellbeing. Equally important is the landscape in defining management policy and educating the public, from bottom up, from early childhood development; in the pursuit of "the good, the useful and the beautiful". This comes as an antidote to despair, cynicism, and a lack of 'vibrancy', or the proper 'vibe of the thing', to breathe hope, fun, raise resilience and powerfully address the task at hand.

Introduction

Issues concerning sustainability and the limits for natural resources have been addressed for decades (Meadows, et al. 1972, 1992). The work of Tony Jackman concerning landscape and strategies for survival with a holistic view, grounded on Greek cosmic values, like the classic triad of "the good, the true, and the beautiful" (Marshall, 1922) and the ongoing pursuit of learning (expressed by Socrates, Aristotle and Einstein alike, as "The more I know I know, the more I know I don't - All I know is that I know nothing"), came in the early eighties in New Zealand, as an antidote to many of the crises already foretold around those times. However, Jackman's[2] work has had very limited publication, and yet it is now that it is most needed, when humanity faces extinction risks of many kinds, as warned by Paul Werbos in recent times (Werbos, 2017a, 2017b, 2017c, 2018, 2019, 2024).

Jackman's work is worth revisiting and this is one of the main reasons for this paper. In 1986 Jackman published a document called *"Our National Landscapes: strategies for survival: in use,*

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[2] Unless otherwise stated, the Jackman referred to in this text is Tony Jackman (PhD. UMASS, B. Hort Sc., Post-grad Dip. LA (Distn), LM NZILA).

in health, and in beauty" (Jackman, 1986a). The comprehensive proposal was based on a 'block model' construct he designed (1983-84) in response to an interagency contract and brief he was commissioned from the Biological Resources Centre of the Department of Scientific and Industrial Research in New Zealand. The proposal was published as a discussion document, of detailed and repetitive clauses, for clarity and easier assimilation and comprehension of the complexities involved in such an interdisciplinary and far-reaching undertaking, to facilitate discussion during seminars and investigative programs. Jackman's theses and commitment built on the *'Total Landscape'* work of Julius Fabos (1979), most specially related to computer information using the Metland model (Fabos & Caswell, 1977), and the ecological systems work of doctoral supervisors, Carl Carlozzi (1986) and Jack Finn.[3, 4]

The *'Total Landscape'* philosophy asserts that understanding the landscape as a whole, along with its myriad processes and interactions, is a steppingstone towards a total ecological understanding of humanity's place in the environment.

For Jackman, grasping the *'Total Landscape'* is the first step to comprehending the *'Total Ecology'*. This aids in understanding the environment as a system of concealed relationships, leading to a new human perception of a possible meaningful order in the universe where we belong together with others. Jackman was inspired in these earlier times by the holistic and visionary views of some of the founding fathers of modern Ecology, such as Eugene Odum (1969, 1977, 2013), his brother Howard Odum (1976) (Madison, 1997) (MacLeod, 2012), and Pierre Dansereau (1973).

An important aspect of the *'Total Landscape' and 'Total Ecology'* philosophy is the three primary value systems that shape individual perspectives of the environment: *Economic*, *Ecologic*, and *Ethic (the three Es)*. Each person weighs these values differently, based on their importance to the environment, other species, society, and self.

Since we are all idiosyncratic individuals and groups, these varying value systems can lead to social harmony or conflict, especially when planning, designing, and managing resources. As New Zealand was then at a cultural crossroads[5], now the whole world is at a crossroad that necessitates a deeper understanding of value system conflicts and explicit trade-offs in resource decision-making. The future quality of life is in question, considering: (a) current global economies and the reliance on primary resources for export income, (b) environmental imaginary boundaries, leading to ecological detrimental effects across national borders, (c) cultural and religious difference, leading to conflicts, wars and terrorism, and (d) the risks associated with the misuse of technology, particularly Artificial Intelligence (AI).

As Jackman warned us then, and still relevant today, recognizing the finite nature of physical resources suggests that economic value systems alone may be insufficient in measuring our present and future quality of life. Therefore, ecological and ethical questions are gaining importance. Yet, we lack adequate measures for integrating ecological and ethical values with economic

[3] John Thomas (Jack) Finn: https://www.researchgate.net/profile/John-Finn-4.
[4] Fabos, Carlozzi, Finn, and William MacDonnell, were all part of Jackman's doctoral committee in the School of Natural Resources at the University of Massachusetts, Amherst, U.S.A., 1980-1983, See (Jackman, 1983).
[5] Jackman's comprehensive proposal was written 1983-84 and published in 1986.

considerations. Trade-offs between value systems in everyday life remain difficult to gauge. However, identifying and differentiating between universal-spiritual values and cultural-behavioural values may lead to a common ground, particularly if we put at the center of the conversation, spiritual values like love, truth, unity, synergy, humor and fun, all increasing the tendency to individual inner peace and social harmony, as suggested by Davis (2009), and Davis and Gillett (2023b).

The Information Age has shown potential solutions to major problems, however, at the cost of several risks, like cyber-attack, 'terminator scenarios', children and adult alienation to virtual spaces, leading to alienation between humans and the larger environment, together with intellectual, mental, spiritual, social and ecological detrimental implications. Even though neuroscience, together with applied mathematics and computational models, has highlighted the human brain as a vital resource, it is also true that it could be underutilized, and in the worst-case scenario, be made almost redundant by AI and Artificial General Intelligence (AGI) agents. This situation must account for an attempt against our human potential and spiritual foundation, and actions to overcome these self-imposed limitations must be taken if we are to soundly address major human challenges.

In the following sections we present a broader view that integrates the philosophies of *'Total Landscape'* and *'Total Ecology'* as human perceptions that can help balance *Economic*, *Ecologic*, *Ethical* and *Aesthetic-Spiritual Values*, together with '*The Noosphere'*.

A recommendation is made to recover the work of Tony Jackman and revisit several alternative resource strategies for broader debate in different cultural niches, and in doing so, making the best use of Jackman's 'block model' and its multipurpose nature, that may be adopted and used as both an educational tool and a data management system.

Tony Jackman's strategy for survival: in use, in health, and in beauty

To recognize the integrative potential of the total ecological perception is crucial to our survival, yet the necessary information to fully support or refute the hypothesis that total ecological awareness is vital for the survival of all species is still lacking. Simply put, our understanding of the environment, and ourselves is still limited, requiring education, more introspection, human potential development and care for the environment.

For such a comprehensive environmental assessment, the development of a more advanced resource information system will be required to improve the capability already in place globally. The collection of available information becomes one of the primary tasks in any strategy for survival—whether it is for productive use, ecological health, or our perception of the beauty of human existence within the environmental whole.

Ecology and ethics lack a universally accepted measure of value; however, modern ecological theory acknowledges that humanity is unable to ensure survival by merely "locking the place up" and that economic considerations are integral to the overall human process that guarantees the

survival of all species. Ecological research during the reformist period revealed that human ecology, while similar, is distinct from the ecologies of other species.

Human and all other species survival are intertwined, however, it is humans who hold the key to this shared survival. Our abilities, perceptions, and attitudes create unpredictable combinations, putting the survival of all species, including our own, in constant jeopardy. Thus, human ecology now recognizes that humans are powerful geological and ecological forces in their own right.

It is plausible and possible that a model used as a learning tool may facilitate growth in the human species, particularly in children who play with such models in their developmental process.

What kind of models would allow for a comprehensive learning process that facilitates a synthesis between *Economy*, *Ecology* and *Ethics*, from both top-down and bottom-up perspectives?

It seems to us that the foundations for such a model have been provided by Tony Jackman, who has tested his *'block model'* to an extent, in multiple symposiums, seminars, lectures, conferences and government council meetings throughout his career as an environmental resource planner, landscape architect and scholar (Jackman 1984, 1993). This is what Jackman had to say about his model in the mid-80s:

> Let us therefore, recourse to the power and complexity of what is essentially a simple "block model", to explore some deficits and to show a way which it "all" can be done. A "block model" – which so far, has been dismissed as "off the wall" by many politicians, many academics and as well by many of the strident critics who too often advocate that one value system is more important to survival than any other. Admittedly, that "block model" is a "toy", but is also mighty useful for exposing and infilling information deficits and perceived cultural needs – and, furthermore, offers the prospect of so much meaningful employment for so many. Given a little bit of money by which they could become computer-conversant, now. That prospect is particularly relevant to youth, many of whom are desperate to assist the older generation out of the "fix", we got them all into. It is particularly important in the Information Age that the brains and capabilities of youth are recognised as rapidly consumable, derived as a product of the human resource. Equally, it is important that such creativity and enthusiasm in life's existence be optimised, because, like information, creativity and enthusiasm dissipates rapidly. And like all the over-40s, youth soon joins the overall scrap heap of human ecological waste. (Jackman, 1986b, pp. 2-3).

If such a model would be adapted to the needs and challenges of today and successfully aid us in this learning process about the environment and the best version of ourselves, we could indeed address many of the challenges we face and overcome them. In doing so, we would be contributing to maximize our chances for survival with a better quality of life than the one many are currently experiencing in different parts of the world.

Top-Down and Bottom-Up

The complexities of design, planning, and management require computers, information systems, and more recently, AI applications to accomplish a proper assessment of *Economic*, *Ecologic* and *Ethical* factors. However, landscape, when conceived with the subjective human dimension in mind, that incorporates cultural, aesthetic and spiritual values, leads to a more comprehensive and healthy approach to landscape, where the economic values are experienced in complementarity with *Aesthetic Values*. In that sense, we need more than just crunching numbers to move to the area of arts and the humanities.

It has been known that the arts and science very seldom meet eye to eye. This unfortunate situation must and can be overcome via more dialogue and shared learning, where the language barriers and idiosyncrasies of each area of human endeavor are bridged to produce the synergy required to accomplish the 'magic' of the unity and complementarity of art and science that would properly inform the information gathering for a comprehensive landscape assessment, *'Total Landscape'*.

This, it seems to us, would facilitate and allow for economic growth, while preserving the beauty and health of the natural environments. This of course needs also a deep knowledge of climate, land, water, soil, vegetation, animal and bird life, humans as users, human uses, human ownership and human institutions, where 'preservation' is a heritage value within the method.

This is how we could develop an understanding from the microorganism to more complex forms of life, and how we humans interact with all in a way that is fun, beautiful and economically sound, keeping the delicate balance between all these values in check. This will require a better understanding of the mind, a refinement of thoughts, a reconfiguration of what is meaningful, and the purification of human intentions. This approach, if socially embraced, would inevitably lead to embracing the ethology of self-responsibility and responsibility to society, in a way that respects individual freedoms while preserving the environment. As Jackman put it:

> […] resource ethics are considered to be the outward, as well as the inward, expression of the culture of the people in relation to a total environmental consciousness. Such ethical expressions are complex but are most easily interpreted in the visible landscape; that is, provided we all can see and read the meanings in it. Those meanings need not, and should not, be the same for all. Everyone's life conditionings differ in relation to his or her experience of the landscape. Furthermore, and somewhat fortunately, we are not in the same life space and place at the same time. (Jackman 1986a, p. 56).

This view compels us to understand the total cosmos, radiation and how it all interacts to produce photosynthesis upon which we all rely. Bottom up and top down processes interrelate and take advantage of such knowledge to optimize food production, for example. Another example is when building tracks in the mountains, for local and tourist enjoyment, in a way that takes advantage and also cares for the particularities of the soil and native vegetation in different places, while properly understanding and legislating for the human activity that goes with it (Jackman, 1987a).

As the reader may appreciate, so far, a comprehensive presentation of the different levels and scales associated with a top-down and bottom-up approach are outside the scope of this work. Perhaps this is a sample of the simplifications and compromises that are required to arrive at a usable and effective holistic model as a learning tool.

It is important to mention that information that goes to waste and never gets integrated, ought to be minimized, together with dis- and mis-information, something that seems very hard to accomplish without authoritarian, usually destructive regimes, that strip out individual freedoms with a misconstrued concept of dis- or mis- information. Real time online information becomes crucial to sanitize social interactions, and vigilance from 'We The People', participating in networks of truth, trust and care.

When we share meanings, values and visions, and we all participate in creating a great environment together, our 'sense of place', belonging and love for one's neighbor becomes real to us. Some seminal models to aid this process are provided by Davis et al (2019a, 2020), which explore, via simulation of community dynamics, an economy based on actions of kindness. These models, unlike Jackman's, are mathematical models that relate to aspects of his *'Total Model Construct'*, where the development of individual inner peace, perceived kindness, actions of kindness, resources and quality of community space and land space, become the object of investigation, leading to a better understanding of *the three Es*, which will be touched on further into this paper.

A General View to an Overall Modelling Construct of The Total Environment

The concept of *'The Total Environment'* is a human perception, and various disciplines have invoked this concept in the study of resources in relationship to different variables and factors. In that sense, resource planning and management have been embellished and improved by the concept of *Ecology*. Semantics and interdisciplinary language barriers complicate the design, planning and landscape process, along with policy planning and the management of the *Economy*. The principle to study the environment as a whole, *'Total Environment'*, is common to both *'Total Resource'* and *'Total Ecology'*.

These areas can be subdivided as follows:

- *A. Total Resource*
    - *Natural Resources (Physical and Biological Factors)*
    - *Cultural Resources (Social and Institutional Factors)*
- *B. Total Ecology - Total Landscape*
    - *"Landscape" Ecology (Abiotic and Biotic Factors)*
    - *Human Ecology (Anthropic Factors)*

The reader should note that the word *"Landscape"* within quotation marks, refers to the limitation of the words *"Landscape" Ecology*; when using the word "landscape" to mean just physical and

biological resource values. Moreover, landscape as a word is most often understood in terms of 'cosmetic landscaping' and usually related to garden competitions, even engrained in colonial attitudes that have continued to develop tiered colonial class systems. This limited perception is overcome by understanding the *'Total Landscape'* perception, which involves a multiplicity of factors, such as those a person sees in and feels about the *'Total Resource'*, because the *"scape"* part of the word *"Land-scape"* is in the mind and moreover, in our use of *"scape"* in seascape, skyscape, humanscape, designscape, etc.

The two main traditional divisions that require integrating in *'Total Ecology'* are *'"Landscape" Ecology'* and *'Human Ecology'*. On the one hand, *'"Landscape" Ecology'* is the field of research that gathers and interprets information coming from the physical *Abiotic* and *Biotic* sciences. On the other hand, *'Human Ecology'* is the field of research that gathers and interprets information coming from the behavioural and social or *Anthropic* sciences (McHarg, 1981). The world 'scape' allows us to integrate the whole.

To summarize, there are semantic challenges and limitations in using the term "landscape" in ecological studies. This term is considered "limited" compared to the *'Total Landscape'* philosophy, which encompasses both the *Noospheric* (relating to the mind or intellect) and *Physical Perceptions*. Therefore, it is suggested that more fitting ecological semantics might be *'Physical/Natural Ecology'* and *'Socio/Cultural Ecology'*. Together, these concepts express a *'Total Landscape Ecology'*.

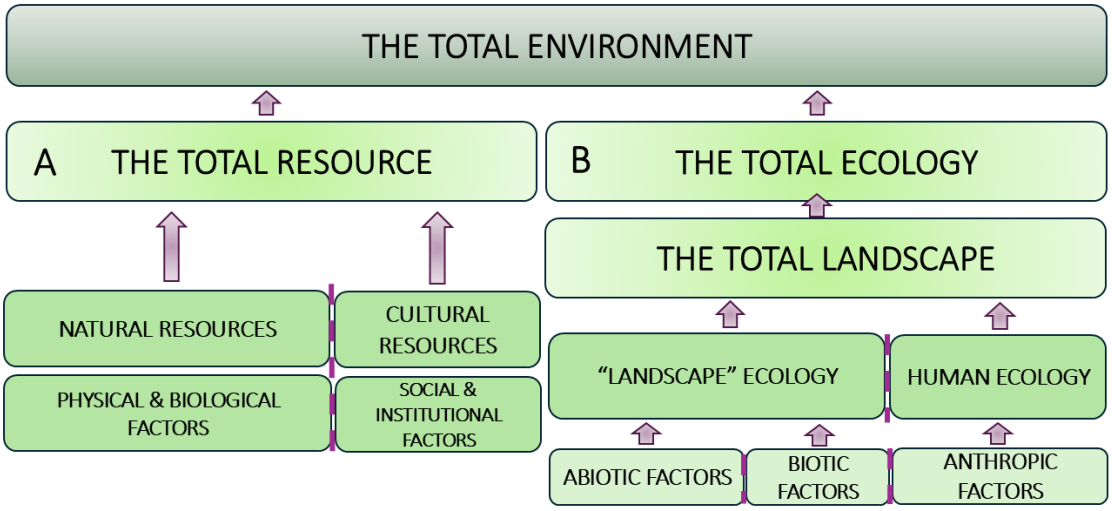

Figure 1. Shows the concept or principle of *'Total Environment'* as a uniquely human perception that integrates physical, biological, social, institutional, abiotic, biotic and anthropic factors.

The comprehensive modelling construct is a product of the mind; it represents human perception of the *'Total Environment'*, which begins with an understanding of a *'Total Landscape'* and then a *'Total Ecology'*, both of which include humans as integral parts, as shown in Figure 1.

The overall perception is visually conceptualized to highlight the importance of *humans as users*, with intrinsic values or value systems, as fundamental to a deeper understanding of an integrated holistic view of *'Economic'*, *'Ecologic'* and *'Ethical'* values (*the three E values*).

Several perceptions, such as the *'Biosphere'*, the *'Human Sphere'*, and the *'Noosphere'*, are incorporated into the totality of the landscape philosophy presented by Jackman.

The significance of the visual landscape, both to the external universe and the internal universe, has yet to be fully recognized. The anthropocentric and self-centered views and attitudes of most humans (individuals and the collective) attempts against the completion of a holistic environment world view. Therefore, we are forced to remember that the concept of *'Total Environment'* supported by *'Total Ecology'* is also a human perception (Vernadsky, 1945) (Dansereau, 1973).

This biophysical reductionism when assessing landscape is simplistic, limited and risky, since it excludes the human mind and activity, such as how different people use the land, and how it is treated, usually under the regulation or influences of different institutions and social groups with different values and visions for the land. This, without a doubt, is a failure to account for the human dimension fully. However, we must never discount the value of land assessment, even in such a reductive and limited manner.

Now we are ready to move to the next section by stating that the failure to recognize 'the vibe of the thing' (Davis & Gillett, 2023b) (Davis, et al., 2015) or the aesthetic value and human feelings, as for example in landscape architecture and recreation activities, neglects the subjective human experience, unique to everyone. These experiences are hard, if impossible, to operationalize and measure. These cognitive, religious, mystical and spiritual experiences are sometimes described or qualified as *'The Humanscape'* (Kaplan & Kaplan, 1978), *'The Inscape'* (Dansereau, 1973), *'The Inner'*, *'The Noosphere* (Vernadsky, 1945), as human predispositions and responses to *'The God Within'* or **I AM** (Davis 2009, 2019a) (Gillett & Davis, 2015) (Davis, et al., 2020).

The Noosphere Dimension

Tony Jackman gave us a brief introduction and definition of *the Noosphere*, as follows:[6]

> Noosphere: generally attributed to Verdansky (1945) and later used by Teilhard de Chardin (1955) and recognises that humans are in fact the most powerful agent in controlling the future direction of the survival of all species. Also recognises that human will and attitudes (so often an anthropocentric state of mind) have to be changed to better ensure the survival of all species. (Jackman, 1986a)

[6] Note, Jackman's early Ecology inspirations, the Odum brothers, although embracing the Biosphere, raised concerns on the philosophy of the Noosphere and its potential dangers. As Eugene Odum wrote, "it is based on the assumption that mankind is now wise enough to understand the results of all his actions." His brother Howard Odum warned, "Man's power to change and control seems to be increasing faster than man's realization and understanding of the results of the profound change of which he is now capable." (Samson & Pitt, 1999, p. 8). Also see Polunin (1988).

Following we explore three different perspectives on the notion of *the Noosphere*. The reader is welcome to embrace any of them in a way that suits his or her needs, world view and metaphysical commitments.

The Noosphere according to Verdansky and Teilhard de Chardin

The Noosphere is a philosophical concept that refers to the "sphere of human thought" or the "mind-sphere" (Greek: νόος *"nous, mind, reason"*, and σφαῖρα *"sphere"*). It was developed by the Russian geochemist Vladimir Vernadsky and the Jesuit priest and philosopher Pierre Teilhard de Chardin (1956, 1959). It represents the highest stage of biospheric development, where human cognition and reason may transform the Earth. It is essentially the layer of human thought and consciousness that envelops the planet. The term was first used by Édouard Le Roy (1928) and popularized by Vernadsky and Teilhard de Chardin in the early 20th century. According to Vernadsky, the noosphere emerges after the geosphere and the biosphere, fundamentally transforming the geosphere and the biosphere through human use and activities (Vernadsky, 2014a, 2014b).

Teilhard de Chardin saw the noosphere as a collective consciousness that would evolve towards an ultimate point of unity and integration, that he called *the Omega Point* (Joye, 2019). This concept can be seen as an analogue to the internet and global communication networks (Zwart, 2022), which facilitates a new level of interconnected human thought and collective intelligence bordering, or perhaps, capable of telepathic communication.

The noosphere encompasses science, philosophy, and spirituality, indicating that human thought and reason are powerful forces shaping the future of our planet. In that sense, Teilhard de Chardin's concept of the collective Christ is deeply intertwined with his views on evolution and the unity of all creation. He believed that Christ is more than just a historical figure, rather a cosmic presence that permeates all of creation. He used terms like *'Total Christ'* (Teilhard de Chardin, 1969), *'Cosmic Christ'*, and *'Mystical Christ'* interchangeably to describe this expansive understanding. For him, the Incarnation of Christ is an ongoing process that continues to evolve and transform the world. He saw Christ's influence extending beyond individual salvation to encompass the entire cosmos. Furthermore, he proposed that Christ's role in creation is to bring about the *'Christification'* of the entire cosmos, meaning that all of creation is moving towards a greater unity and integration under Christ's influence (Grumett, 2006).

He envisioned the ultimate goal of evolution as *the Omega Point*, a state of maximum complexity and consciousness where all creation is united in Christ. This point represents the culmination of the evolutionary process and the full realization of Christ's presence in the universe. Teilhard de Chardin emphasized the interconnectedness of all things and the idea that Christ's love is the driving force behind the evolution of the universe. This love infuses all creation with divine energy, guiding it towards greater unity and harmony.

Teilhard de Chardin's vision of the collective Christ is a profound synthesis of science, spirituality, and theology, offering a holistic view of the universe and humanity's place within it (Teilhard de Chardin, 1965) (Duffy, 2014) (Euvé, 2017).

The Noosphere according to Werbos

In *"The Phenomenon of Man, Revised: Evolution and I.T. versus Extinction in the Years to Come"* (Werbos, 2019), Paul Werbos revisits Teilhard de Chardin's original work, *"The Phenomenon of Man"*. While Teilhard de Chardin's original concepts are deeply rooted in his Christian faith and theological views, Werbos takes on a more universal and inclusive perspective, where he has integrated modern concepts, like machine learning and the Internet of Things (IoT), to adapt Teilhard de Chardin's vision of the noosphere to a more inclusive and scientifically valid modern-day vision. He explores how advancements in technology, particularly artificial intelligence, could further develop this collective consciousness. The paper discusses how technological evolution, especially machine learning and IoT, parallels biological evolution and contributes to the growth of the noosphere. He also addresses the potential challenges and existential threats that humanity faces, emphasizing the need for a balance between technological progress and ethical considerations to ensure survival.

This broader perspective allows for a more inclusive dialogue on the future of humanity and the role of the noosphere in shaping our understanding of existence and progress.

In essence, the views of Werbos align well with a universalist outlook, integrating diverse fields of knowledge and addressing global challenges from a holistic standpoint.

The Noosphere according to Davis

In the paper, *"An Evolutionary Approach to Modelling Brain~Mind~Soul Dynamics"* (Davis, 2019b), Joshua Davis introduces the reader to a unique and integrated view of the noosphere. His views differ from the views of Verdansky, Teilhard de Chardin and Werbos.

From the perspective of Davis, dark matter could be a potential carrier of spiritual values associated with a 'Spiritual Values Field' (Davis, 2009), which is a novel concept absent in the work of Werbos and Teilhard de Chardin. This new approach adds a spiritual, and perhaps fundamental, dimension to the understanding of the noosphere, linking it to physical phenomena beyond traditional scientific boundaries (see Figure 2).

Davis employs a systemic view, indicating, like Werbos, that human brain dynamics networks can interface with a brain-like network in the planetary noosphere. This holistic approach emphasizes the interconnectedness of mind, brain, and soul, and how they collectively contribute to the evolution of consciousness.

Unlike Teilhard de Chardin's earth-centric and religiously influenced perspective, the theory of Davis extends to different planetary realms and aims to dissipate any religious biases in the conception of the noosphere. This makes his approach more universally applicable and inclusive.

He also introduces mathematical modelling to better understand human cognition and consciousness, and to develop truly intelligent and benevolent systems with soul-like behavior.

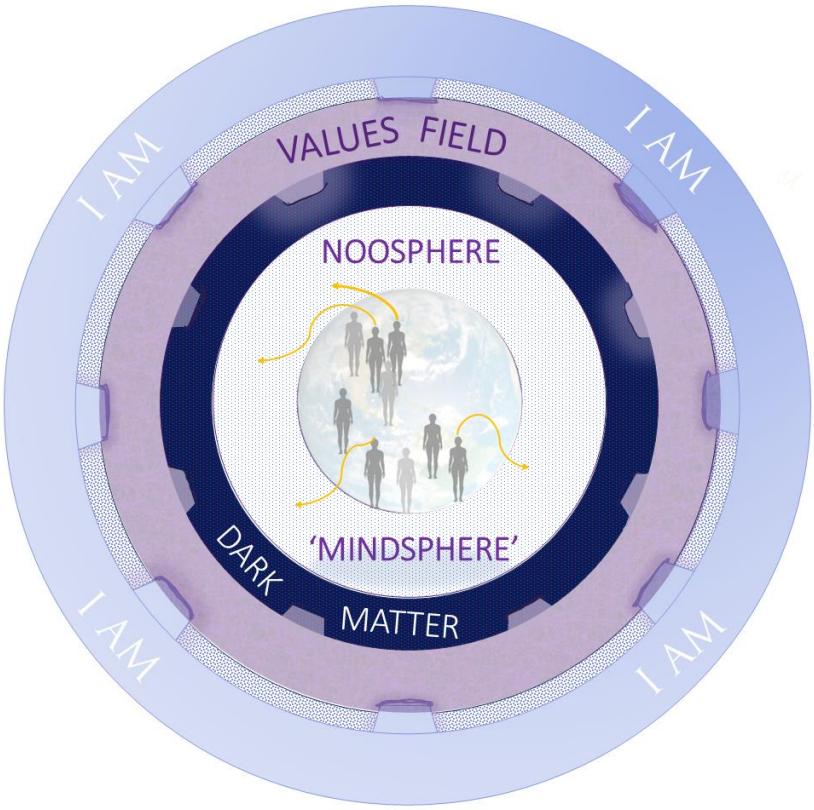

Figure 2. Shows the interaction and symbiosis between the different planetary spheres and fields.

The scientific-spiritual synthesis offered by Davis, contrasts with Verdansky and Teilhard de Chardin's more inclined philosophical and theological framework. Davis discusses practical applications, such as meditation and other practices, to interact with the noosphere, aiming for social harmony and the development of human spiritual potential. This focus on practical actions in life is a departure from more theoretical discussions.

Like Werbos, Davis's integrated view of the noosphere combines elements of science, spirituality, and practical application, offering a comprehensive framework for understanding and advancing human consciousness.

The Specifics of the Total Modelling Construct

The comprehensive study of resource components within various disciplines reveals a competitive yet shared understanding of common elements. Specialized disciplines, adhering to traditional scientific methodologies, often focus on singular components, while others take a more holistic approach, combining different components. When consciously avoiding over reductionisms, planning and design disciplines frequently employ holistic thought processes, aiming to optimize the potential of human cognition (Hunt, 1982).

Landscape and ecology are prime examples of holistic approaches to environmental understanding. They rely on contributions from various disciplines to form a provisional construct for an all-encompassing resource information system. This approach is essential for advocating for a unified and integrated data system rather than multiple standalone systems.

The *'Total Modelling Construct'* proposed by Tony Jackman, is a simple 'block model', made up of 150 separate blocks and designed in different layers as a classification-like system (a front view is shown in Figure 3). The model is "the result of a great deal of thinking, that "all" came together in the bath" so to speak, however, Jackman holds no claim to have found it "all". After all, holisms have baffled most for centuries. Pattern play and dynamics have been a big part of Jackman's pursuit of holism, and this is synthesized in the model, integrating many of the concepts that were intriguing to him and becoming clear in the 70s and 80s, many of which have over time got lost along the way.

Here we have interpreted the model in and for our times.

The blocks were primarily created for discussion, for exploration, and perhaps, perpetual discovery. Ten common resource components comprise the building blocks of this holistic model, as opposed to the often used one block models. They are *Climate* (1), *Land* (2), *Water* (3), *Soil* (4), *Vegetation* (5), *Animal and Bird Life* (6), *Human as User* (7), *Human Uses* (8), *Human Ownership* (9) and *Human Institutions* (0). The components are arranged laterally, numbered 1 to 0 and color coded, emphasizing their interdependence and their collective contribution to environmental understanding. Each one is placed based on its independence from human influence and its interdependence with neighboring components. While the model is static, it has the ability to progress from zero point up (5 layers) and laterally, as well as dimensionally (discussed further into the paper) and circularly, acknowledging the dynamic interplay and merging among components, often leading to different dominances in real life (Judson, 1980). This could be a tool to design systems dynamics models that address the dynamism of each subsystem and the whole model.

Figure 3. Shows a front view of the holistic block model construct with the ten resource components: (1) Climate - Red, (2) Land - Brown, (3) Water - Blue, (4) Soil - Gray, (5) Vegetation - Green, (6) Animal & Bird Life - Tan, (7) Human as User - Magenta, (8) Human Uses - Orange, (9) Human Ownership - Yellow, and (0) Human Institutions - White; arranged according to their independence of human influence and interdependence to closest neighbor.

The placement of magenta component 7 (*Humans as Users - Societal*) in the *'Total Model Construct'* is particularly significant, as shown more clearly in Figure 4, as it could lead to a broader comprehension and measurability of ethical values, deeper meanings, and perceptions involved in *'Total Landscape'* understanding, potentially fostering a wider cultural perception of the environment.

Overlooking the opportunity to research environmental perceptions within society should be avoided, especially given current developments in information, computational and AI based data retrieval systems, and advancements in cognitive sciences. However, leaving out component 7 is common in many landscape assessments.

The analysis of the so-called *'visual resource'*, which component 7 includes, is challenging because it involves individual perceptions and attitudes toward the qualities we see in the land- and sea-scapes around us (Allsop, 2010) (Oliver, 2010). These values are difficult to describe and quantify in traditional scientific terms. Developments in cognitive science and computer-assisted graphics, however, may offer potential practical solutions (Hunt, 1982) (Moore & Colledge, 1976).

See what Jackman and Bruce Treeby had to say in 1984, in *"The Need for a Total Landscape Philosophy"*, p. 3:

> Vision is the preeminent human sense and although we cannot see "the total environment" each one of us can find the meaning of it from the interpretations we make of what we do see in "the total landscape". But what is still in doubt is our individual and collective human ability to recognise, analyse and then bring meaningful resolution to what we do see going on in the landscape. Given the finite nature of the land resource, the present global economy, the present global ecology, and present prevailing global ethics, we consider that collectively we in New Zealand are no better placed and have no greater reason than now to attempt to come to grips with a "total landscape philosophy". This would let us see where we have come from, where we are at, and will give us a better indication as to where we as individuals, and where we as a society, are going in the future. Vision really has no boundaries and each of us, although all too often it goes without recognition, contributes and therefore has a responsibility not only to oneself but to others for what results in the landscape. As much as it is a reflection of the share which each of us plays in creating the landscape about us, the "total landscape philosophy" is one to share for it recognises that no one person, or for that matter discipline, has never had the "total answer" and it is hardly likely to in the future. (Jackman & Treeby, 1984)

From the above thoughts we derive that since Jackman's ideas and models lacked a deep effect on New Zealand policy towards his vision of a better future, nevertheless, at a micro scale level some achievements were made, and since the philosophy is still needed given the present time situation, it seems reasonable and perhaps a duty to bring it back to life, adapted to the new realities, in the context of new technologies.

Figure 4. Illustrates the placement and relevance of component 7, *Humans as Users*, which interacts with both components 1 to 6, and components 8 to 0.

In Figure 4 we illustrate the relevance of including component 7, described as *Humans as Users* in the model, which interacts both with components 1 to 6, and components 8, 9 and 0.

There are, at least, four paradigms or approaches to be considered to analyze and understand in depth the so-called "visual resource" (within component 7) in "landscape" assessment and within the systems and model in question (Jackman 1986a, pp. 32-33). They are:

1. *The Expert Paradigm*: "respects the traditional values that society places on the role of experts in all professional endeavours."

2. *The Psychophysical Paradigm*: "analyses the characteristics of the landscape, particularly physically measurable surface qualities, and then applies psychological rationales to determine different visual qualities. This approach to method is called "the psychophysical" but were the words reversed to "physical-psycho" it becomes much more apparent what the paradigm is attempting and why component 7 is described as a human-user concept in the proposed database construct."

3. *The Cognitive Paradigm*: is inner perceptions based and "attempts to analyse such inner, deeper qualities" and cognitive studies have been advanced in this direction (Davis, et al., 2015) (Davis & Gillett, 2023a) (Davis, et al., 2024).

4. *The Experiential Paradigm*: "relates more specifically to the immediate and dynamic experience of moving through the landscape itself. […] it is clearly connected to dynamic concepts of humans as being moving users of the landscape."

The *Psychophysical Paradigm* emphasizes the need to interpret both the physical and psychological attributes of the landscape, acknowledging the individual meanings we attribute to it. Components 1 to 6 represent the natural physical attributes (the *Biosphere - Climate, Land, Water, Soil, Vegetation, Animal & Bird life*), while components 8 to 0 reflect human activities and cultural expressions (the *Humansphere - Human Uses, Human Ownership, Human Institutions*). As Jackman succinctly put it, "The paradigm therefore draws on physically measurable

components on both sides of number 7, and its placement acts as a root to understanding the more difficult "fifth" dimension involved in assessing human-user perceptions of and preferences for the elements of the physical landscape about us." (Jackman, 1986a, p. 33).

Humans, as stewards of the natural resource, have a responsibility rooted in ethics rather than economic or ecological values (McHarg, 1981).

The *Cognitive Paradigm* delves into the deeper individual perceptions of the landscape, although it remains challenging to convey the unique dynamics of personal experiences (Appleton, 1975) (Greenbie, 1981) (Kaplan & Kaplan, 1978).

In a sense, the *Psychophysical* and *Cognitive Paradigms* are dealing with the 'mapping' of the human mind.

The *Experiential Paradigm* focuses on the immediate experience of moving through the landscape, highlighting the dynamic nature of human interaction with the environment.

Figure 5 integrates Component 7 with the rest of the human dimensions of *"The Human Sphere"* or *"Human Ecology"*, that include components 8, 9 and 0, already described as *Human Uses*, *Human Ownership* and *Human Institutions*, respectively.

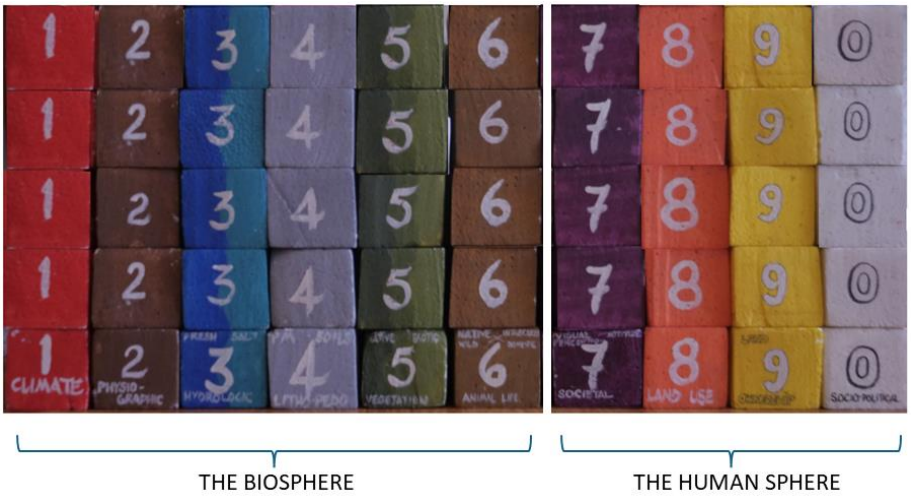

Figure 5. Integrates the *Biosphere* (1-6) and the *Human Sphere* or *Human Ecology* (7-0), emphasizing their independence and interdependence to each other, and their collective contribution to the 'total environmental' system and understanding.

Component 0 (white), representing *Human Institutions*, underscores the influence of political and administrative decisions on the landscape. Differences in administrative policies can lead to distinct landscape outcomes, often disconnected from natural system boundaries. The current landscape assessment work is limited by administrative boundaries and budgets, hindering the optimization of resource attributes (Jackman, 1988).

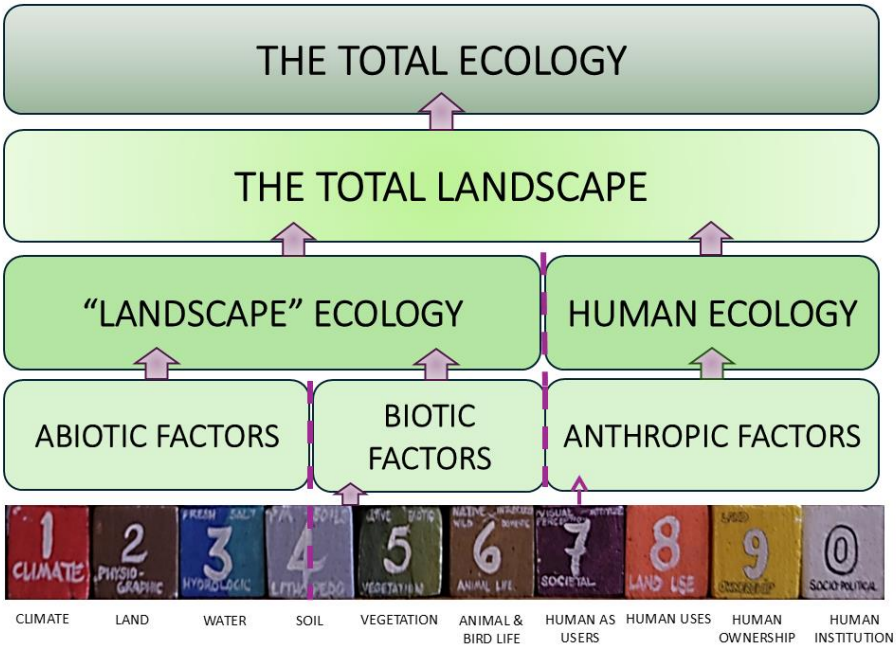

Figure 6. Shows the common resource components at the bottom of *'The Total Ecology'* model, as part of the systemic interactions between them, namely: (1) Climate, (2) Land, (3) Water, (4) Soil, (5) Vegetation, (6) Animal and bird Life, (7) Humans as users, (8) Human Uses, (9) Human Ownership, and (0) Human Institutions. All of these components interact and merge in turn with the upper levels of the system, like pieces of a puzzle intersect or overlap into each other, represented statically in the diagram as follows: Abiotic (1 to 4), Biotic (4 to 6), Anthropic (7 to 0).

In Figure 6 we show the model with component 7 as an integral part of the *'Total Landscape'* that includes *'Landscape Ecology'* (Components 1 to 6 – The Biosphere) and *'Human Ecology'* (Components 7 to 0 – The Human Sphere).

The placement of the components is novel and with its difficulties in the fixed graphic form of the lateral construct, which adds three dimensions when playing with value systems, as follows: *Economics* (1), *Ecologics* (2) and *Ethics* (3), as shown in Figure 7 (left and right). These three principal value systems are fundamental to the *'Total Environment'* philosophy and are known as the *"Three Big Es"* of landscape value judgements.

Figure 7. Shows both top (**left**) and side views (**right**) of the holistic model, with the addition and integration of the three dimensions of value judgements: Labelled as follows: E1. Economics; E2. Ecologics and E3. Ethics.

Jackman groups the three together within his holistic model, as different value judgements exist and emerge depending on whether someone has a perception that is *Economic centric*, *Ecologic centric*, or *Ethic centric*. Such groupings and universal sets make people ask questions and provide insight into the way one perceives, thinks about and relates to life.

In 1984, Jackman and Treeby suggested that:

> To the ultimate detriment to survival we have simplified and denied the complexities of our existences too much. But given that it is human penchant to simplify things, we suggest that when the many human value systems are grouped into three, namely, Economic, Ecologic, and Ethical systems, a more simple route to understanding the complexities which confront us appears to be forthcoming. (p. 3).

It is important to take a moment to look at the deeper meanings attributed to these value judgements, according to Jackman.

- *The Economy Dimension:* Economics defined here is "derived from Greek, 'oikovouos', for management of the 'house'. Today, the theoretical science of the law of production and distribution of wealth." (Jackman, 1986a, p. 122).

Jackman and Treeby expand when writing, "Economic values are easy enough for all of us to comprehend; although dollar values do not measure everything we value, we all need and use some of it to survive. We develop to produce food, fibre, fuels and pharmaceuticals, and sometimes we even develop and plan for fun [**the five Fs**], to satisfy many of our present perceptions of wealth as condition by the need for money." (Jackman &Treeby, 1984, p. 3).

- *The Ecology Dimension:* "Ecology: derived from Greek, 'oikos', for 'house', and extended to 'habitat'. Today, the science of the economy of both biosphere and humans." (Jackman, 1986a, p. 122).

- *The Ethical Dimension:* "Ethics: derived from Greek, 'ethos' or 'character'. The science of ethics embraces morals, the prevalent tone of a people or community, and the genius of the human system." (Jackman, 1986a, p. 122).

Here we need to explore in more depth Jackman's insistence on the Ethics dimension, since it appears to be crucial to find a balance between all parts of this dynamical environmental complex system. To the point that for Jackman, this could be very relevant as a prospect for New Zealand (his place of birth) to embrace in order to contribute to the global planetary needs.

Here he and Treeby explain:

> Ethical Values are, however, far more difficult to define let alone clump under one combined set of values but essentially ethics, as defined here, is the outward expression of the culture of a nation's people. No common method of value exists for measuring

> ethics for it embraces both morals as well as aesthetics. Like economic and ecological value concerns, ethical values is not readily separated from any of the other value systems, for all interface and intertwine. But we do preserve, rather than conserve, some of our land and landscapes; again as an assurance for survival. We also preserve them as an outward expression of the deeper beauties which we can all individually find in the landscapes which surround us. In the ethical sense used here we therefore attempt to satisfy our responsibilities to ourselves, as well as our responsibility to the wider community. Furthermore, we attempt to satisfy those deeper aesthetic consciences we all hold within. That artistic inner conscience which proves so very difficult to even state, let alone communicate, in universally accepted language. It is because we have not been able to communicate such deeper landscape values all that well, that landscape architects in particular have had to play around on the cosmetic fringe of development value biases, rather than embrace to wholeness of the total landscape ideal. Given some comprehension of the "Three Big E's" and how all interact and then the need to play them all in concert, acts as a greater assurance for survival than any one value system bias played alone. The "total landscape" philosophy, therefore aims to place some order on what we have found out about the "total environment" so that we do not continue to make the mistakes of the past and from that understanding hopefully ensure a greater prospect of survival for *all* processes, *all* species, and all *values* in the landscape of the future. New Zealand has the chance to give a lead and it is our individual and collective interests to do just this. If the methodologies are right it will contain global truths, and be transportable in forms of aid as well as in technologies for sale. We could use this land and our landscapes as a case study for the world which sets out to demonstrate that a balancing of the values between economic, ecologic and ethical systems is achievable and so enhance the prospects of a better global tomorrow." (Jackman & Treeby, 1984, pp. 3-4).

Jackman integrated into his model, the triple E concept together with Aesthetics (A) and the five Fs, the **EEEA** and the **FFFFF** (the last F actually being a **Ph**), as a tool to simplify the representation and explanation of this complex system. He presented it as a way to get more people thinking about resource management, particularly farmers in those times, since there is too much emphasis on politics, rather than training and education.

The reader must note that **F**ood is a basic need. **F**uel is needed to cook, for example, with its side effects of carbon emission. **F**iber is needed for clothing and shelter, and **F**un seems to be also essential. **Ph**armaceuticals (phonetically '**F**arm-aceutical') relates to traditional medicines and their modern version within a potential corrupt, money driven industry that overestimate the benefits and underestimate the side effects of such drugs and types of medicine. Let us remember that Pharmacy has a Greek origin and connects to the word *"Pharmakia"* (φαρμακεία) which is related to *pharmakon* and has a broader meaning that includes drugs, medicine, as well as the use of potions and enchantments. In ancient texts, *Pharmakia* often had connotations of sorcery or witchcraft, reflecting the dual nature of substances that could heal or harm depending on their use.[7]

[7] Online Etymology Dictionary: https://www.etymonline.com/word/pharmacy, last retrieved 31 January 2025.

There is a clear need for national resource strategies in every nation, though different for each, to better comprehend the national landscape as a whole, considering the *Economic*, *Ecologic*, and *Ethical* value opportunities across administrative boundaries. It seems to us that this holistic approach will lead to a more comprehensive understanding of *'The Total Environment'* and its dynamic interplays. The *Total Modelling Construct* could be used as a learning tool for analysis at a planetary scale when we consider that national boundaries are human constructs. That means that the model could serve as an instrument of dialogue and understanding, to find international agreements concerning the planetary environment, human activity, together with economic and ethical values. This would give a great insight into *'Total Environment'* with its associated benefits in *Economic*, *Ecologic* and *Ethical* values, where dynamic differences and interplays are the easiest to read in the landscape around us, although it is often a difficult and complex interpretative process. By comparison, the dynamics of liquids and gases are less easy to interpret and quantify. Water and atmospheric components of the *'Total Environment model'* clearly fall into these categories. Therefore, understanding the *'Total Landscape'* is emphasized, as it could lead to a better comprehension of *'Total Ecology'* and, consequently, a *'Total Environmental'* understanding (Judson, 1980).

Furthermore, there are many different combinations of components that express themselves in the landscape, as well as numerous combinations between the parameters (and variables) within each of the ten components. Parameters are regarded as high-order variables with significant long-term environmental effects, while variables encompass both parameters and shorter-duration effects (Overton, 1977).

Finally, we need to mention five additional dimensions in the model, conceptualized as *"Information Levels"* (Jackman, 1986a, p. 37), observed in Figure 8 (from top-down), where the five levels are labelled as follows:

a. Level 0 (All-encompassing of Levels 1 to 5): Global Divisions (Megascopic)
b. Level 01 (**top**): National (Upper Macro to Lower Macro)
c. Level 02: Regional (Lower Macro to Upper Meso)
d. Level 03: Sub-Regional (Upper Meso to Lower Meso)
e. Level 04: Local (Lower Meso to Upper Micro)
f. Level 05 (**bottom**): Site (Micro and Point).

Figure 8. Shows the 5 'Levels of Information' in each of the triple E value judgements in the model, Economic, Ecologic and Ethic, as follows (top down): 01 National, 02 Regional, 03 Compartment, 04 Locality and 05 Site.

The synthesis of Jackman's multidimensional *'Total Model Construct'* is reflected and summarized in Figure 9, where he shows that the *Total Modelling Construct* is a product of *the Mind or Noosphere*, the human perception of the *'Total Environment'*, which relies on understanding the '*Total Landscape'* and *'Total Ecology'* that humans are part of.

The figure emphasizes the placement and importance of component 7, *'Humans as Uses'*, in deeper comprehending *Economy*, *Ecology* and *Ethics*, and makes clear that information is transformed by interpretation.

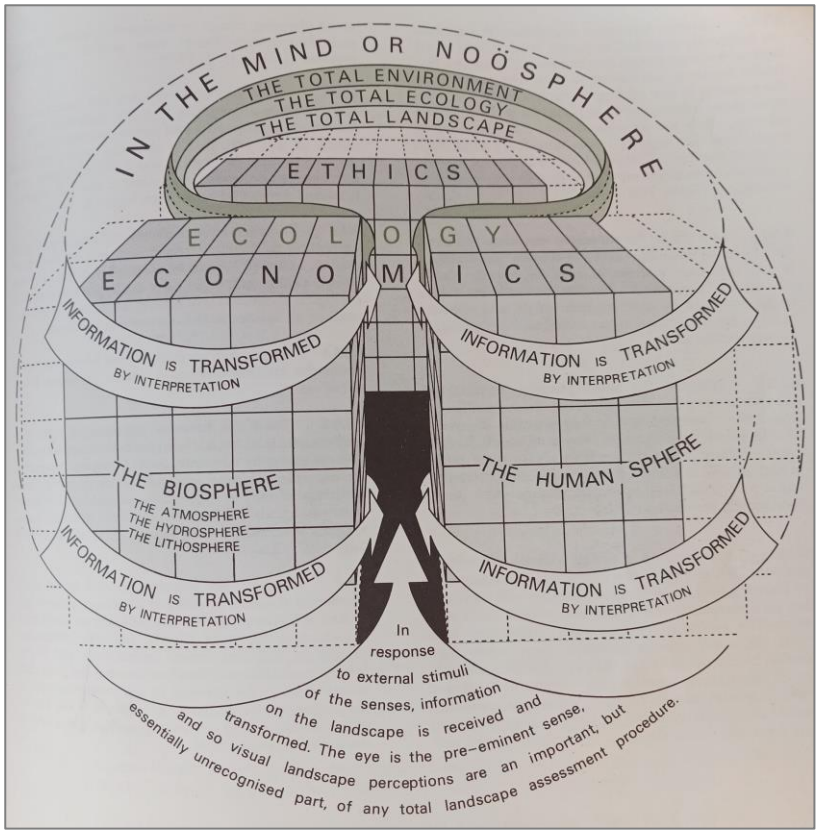

Figure 9. Shows the *'Total Modeling Construct'* as a product of the Mind or Noosphere, the human perception of the *'Total Environment'* that relies on understanding the *'Total Landscape'* and '*Total Ecology'* that humans are part of (Jackman, 1986a, p. 67). Image re-published with permissions of Landcare Research, NZ.

The Total Noosphere~Environment Emergent Model

A General Systems Dynamics diagram, as the one depicted in Figure 10, is required to outline a model that reflects the potential interactions between a hypothesized *'Universal or Spiritual Values Field', 'Classical Fields', 'Quantum Fields', 'Matter Field', 'Gravity', 'Dark Matter', 'The*

Noosphere' (individual-collective) and human brain dynamics, presumably in symbiosis with the individual's Mind~Soul[8], that may describe the evolution of human consciousness.

As any model, this one is also a simplified diagram, geared to illustrate the dynamics of soul and consciousness evolution, with its own definitions, axioms and presuppositions based on individual subjective experience and spiritual wisdom and knowledge as found in different cultures and texts and more recent personal revelations.[9]

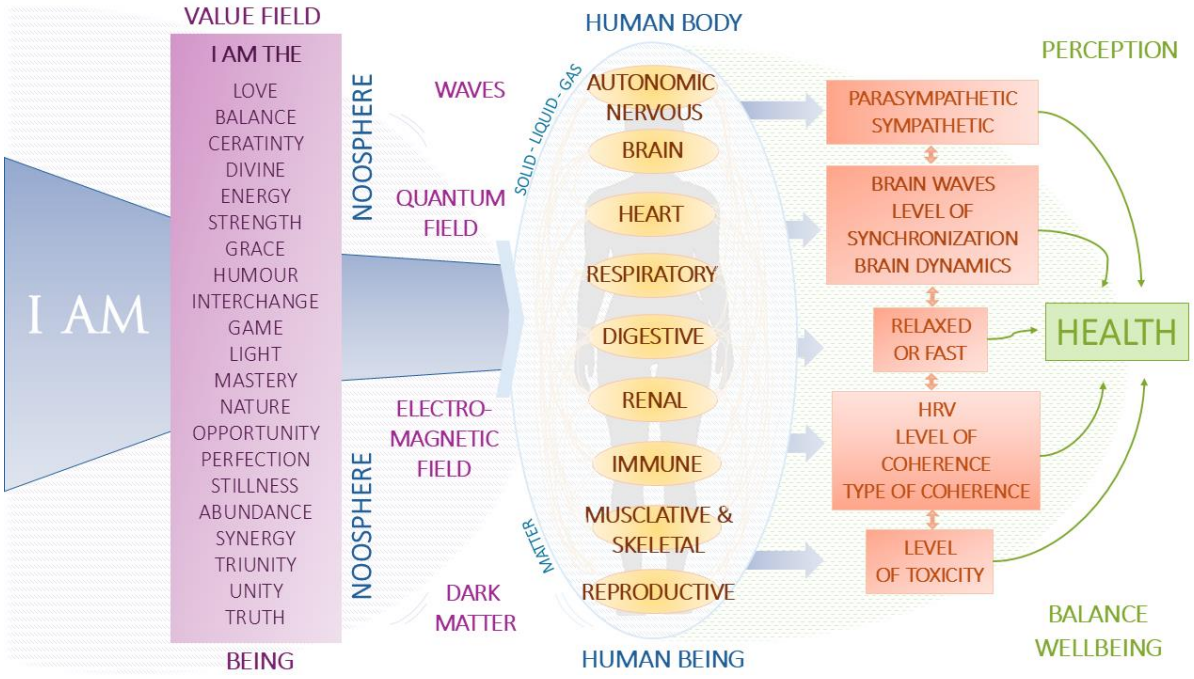

Figure 10. Shows the dynamics of soul and consciousness evolution (top down), from I AM to the Value field, to the Noosphere, the Quantum Field, the Electromagnetic and Dark Matter fields, to the Biological sphere, the human being~body, and different biomarkers and measures for health, balance and wellbeing.

According to subjective experience and the wisdom acquired via social interactions, it is possible to conceive that an intelligent and benevolent human being may find internally in his or her *'Inscape'* (Dansereau, 1973) the means to voluntarily and willingly, with commitment, via the agency of the mind, seek, find and report intentional interactions between his or her soul (whatever that means), other souls and the Universal Being, or All Being, I AM.

When we conceive the possibility that our mind~soul finds its creative life filled with new and foreign ideas that come with the potential of self-actualization (Maslow, 1964, 1968, 1971), our psyche is prompted to address such *'callings'* that, when followed through, will more likely allow for self-actualization. This has been reported as *'Peak Experiences'* and the stabilization of such experiences leading to self-actualized humans, living in a *'Plateau Experience'*. Similar

[8] The symbol ~ ought to be understood as explained by Kelso and Engstrom in *The Complementary Nature* (2008) and in *The Squiggle Sense: Sixth Sense of the Complementary Nature and the Metastable Brain~Mind* (2024).
[9] *Paradise Landing* and Davis (2009).

phenomena have been reported by Carl Jung, accompanied with synchronicities (Jung, 1973). These apparently meaningful acausal events have been related to quantum events and their connection with the psyche, in a set of letters exchanged between Jung and Pauli (2001).

We have arrived at a place where the psyche (or psuche, soul) may have established a conscious interaction with others, involved in meaningful acausal events, synchronicities, within the universe, something that reminds us that there is so much we ignore within the vast *'Total Environment'*.[10]

With such ideas in mind and with the desire for such experiences, we could leap a step forward in attempting an explanation at the interactions between electromagnetic fields, dark matter, the spiritual value field and the noosphere, and more importantly, an experience of the unknown. We can consider, also, that such *Mind-Sphere* or *Noosphere* experiences might well be referred to by Jung as the collective unconscious, with all its associated archetypes (Jung, 1981).[11]

When we learn how to continuously embody spiritual values, the spiritual experience or set of experiences may lead to a purification of the mind. For example, when we reflect and think about an experience of deep love that was very recently experienced. Such experience may beget noble thoughts and the desire to re-experience and live in such a field of love continuously.

Perhaps, these sorts of experiences, when habitually manifest, could be described as a form of spiritual enlightenment. When people become enlightened in that manner, such people may positively affect *the Noosphere*, and in so doing, affect the individual minds that may feedback with multiple minds, also in feedback loops with multiple brains of multiple individuals as they live their daily life.

Conscious evolution, in the end, as more individuals achieve their full potential, may well lead to a collective *Plateau Experience* of Maslow or *The Omega Point* of Teilhard de Chardin (Smith, 2018). As described by Davis, Grant Gillett and Carlos Warter (2018):

> Maslow provided us with an understanding of basic survival needs; however, his framework of human development moved towards a more refined form of existence, where aesthetic and existential (being) values, as the foundation of self-realization, are at the top of his pyramidal description. He also elaborated on peak experiences (Maslow, 1964) and later further developed a description of a form of enlightened state that could be embodied daily in ordinary life, which he called plateau experience (Gruel, 2015).

[10] It is important to note that one of the authors and guest-editor of this *JCER Feature Focus Issue*, experienced a meaningful synchronicity when finalizing this co-authored paper with two members of the Biological Physics and Meaning group, and at the same time finding out that two presenters were unable to contribute a manuscript to the issue. The completion of the paper was very valuable and timely, since the paper turned out to be meaningful and really well suited to the subject of the Mini Conference. Also meaningful, given Tony Jackman was the one who initially proffered to her the need to integrate science with the spiritual journey, as shared in the introduction of this focus issue.

Let us hear as the Spirit speaks; 'I AM the one who does the work of wisdom. I AM The Integration and Synthesis of Science and Spirituality.'

[11] The reader is referred again to Figure 2.

> Spiritual values, as described by Davis, have a strong similarity to aesthetic and existential (being) values, as described by Maslow (1964, 1968). The reader must note that the experience of spiritual values is equally available to all, without requiring a personal relationship with The Creator.

This coincides with Jackman's proposal that "…aesthetic values act as a contributor to the real ecology as well as to the even broader sphere called the total environment value" (Jackman, 1987b, p. 13). When we associate this idea to the notion of Noosphere, we can start to derive a broader perspective of human existence and activities. As we have mentioned, *The Noosphere'* (individual-collective) shapes human brains via thought patterns, some of which appear to be private and others that are shared. When we consider the possibility of shared meanings in mental spaces via shared language, culture and perhaps, when applicable, telepathy, a symbiosis between the individual's Mind~Soul and Brain~Heart (Body) may present itself as shaping and describing the evolution of human consciousness, Mind, Body and Soul.

When we approach *the Noosphere* as a *'child noosphere'*, we would be inclined to nurture it with kindness and pure thoughts and feelings, accompanied with higher or spiritualized meanings that may contribute to its evolution until it becomes an *'adult noosphere'*, fully developed to support newborn souls, improving their developmental spiritual path and the quality of the human being.

Eventually, we can predict that social harmony could occur, accompanied by collaborative restorative actions for our environment, amongst other benefits. If we uphold this line of thinking, we may be inspired to contemplate the possibility to avoid and neutralize planetary possible catastrophes, by improving the quality of our thoughts, feelings and actions.

Social Responsibility and Education

As already explained by Jackman, *'Resource Ethics'* are both the outward and inward expressions of a culture's relationship to *'Total Environmental Consciousness'*. While these ethical expressions are complex, they are most easily interpreted within the visible landscape. However, these meanings are expected to be very diverse, as everyone's experiences and life conditionings differ, and we live in very different life spacetimes simultaneously.

Each of us describes these experiences differently: verbally, in literature, poetry, arts, and music. Some people believe they are unable to express themselves and are content to leave this to others or keep such expressions within. This collective expression forms a "salad bowl" that encompasses the complex realm of the arts, morals, and beliefs. This realm includes concepts such as the *'Noosphere'*, the *'Universe Within'*, the *'Humanscape'*, and the *'Inscape'*.

The domain of landscape architecture encompasses planning, design, management, and visual landscape resources. However, the philosophy of the *'Total Landscape'* is more comprehensive, seeking to find connections between *Economic* and *Ecologic* value systems, as well as *Ethics*, as stated before. Understanding the combination of socio-ethics and land ethics is essential to forming a broader, global environmental ethic. This approach offers a potential first step towards a holistic

comprehension of environmental ethics, which must also consider the atmosphere, seas, and the lithosphere beneath the land's surface.

By integrating ecological and economic considerations, we can develop strategies for survival that balance human needs with the health of the entire environment. This comprehensive approach ensures that we recognize the interconnectedness of all life forms and the importance of maintaining a harmonious relationship with our natural surroundings.

That steers us in the direction of ethical living and acting in the world with others and the environment, with the notion of the Earth as a child that we need to nurture and care for, rather than a mother that we feed off with a demanding attitude, as babies do, without ever saying Thank you! This is acceptable for babies, yet we need to grow and become adults, and together with us, our *'Child Noosphere'*.

Real Hopes for the Future in the face of Risk Extinction

So, what hope do we have to successfully face our challenges? Perhaps the answer is to be found somewhere else than science, even with the best optimization, simulation and decision models and systems. To us, the authors, a better future more likely awaits us in the scenario that we develop our human, spiritual and ethical potential to better design and use systems as part of a coherent and trustworthy social network available in *'Total Ecology'*. This is what Tony Jackman had to say in 1986:

> Perhaps our conditioned expectancy that science, as aided (and abetted) by new technologies, will deliver novel answers is wrong? Perhaps science, in particular, is too trapped within the long-held virtue that the purely reductionistic approach is the only answer to problem-solving? But both questions are minor problems compared with communicating available environmental information to the greater proportion of the world's human populace, who still face an everyday existence with uncertainty. (Jackman 1986a, p. 85).

Appreciation for and trust in the other, more likely, will allow for cooperation and team work to address major challenges. Without such cooperation, collaboration and appreciation for the other and the environment as sacred, we will more likely fail.

Can we achieve this? We think we can, however, it will require all of us, it will require you!

One thing abundantly clear, is that we have 'socio-ethical responsibility to ensure that future generations have something of value left to share'. This is what Jackman and Treeby had to say in the 80s in relation to New Zealand, however, still and increasingly pertinent today for the whole planet:

> We should therefore now try to find better answers that will ensure a quality of life tomorrow, the likes of which we have not yet learnt to even recognise, let alone enjoy. A simple way to begin to comprehend the total landscape and what it means and is

> saying to us now, is related to how each of us views selflessness as the complement to selfishness. Although what you do behind your fence is your prerogative, the view over the fence belongs to us all. It is the interpretation of that view which displays how much you care beyond yourself. However, a more complex answer appears to lie in the need for analysis of how we individually comprehend our role in the landscape as it effects the nation as a whole, and what we can collectively do to ensure that society is satisfied in what we individually do within the "total landscape". We might also seek to analyse the present economic mess to determine why it is [,] in relation to the trade offs that have occurred between economics, ecologics and ethics in every resource use decision that we made in the short history of development here. From careful scrutiny of past mistakes we might find another, better way to understand and perhaps reshape the whole environment. The question remains, however, as to how we as individuals might begin to build up our "total landscape" understanding? (Jackman & Treeby, 1984, p. 5).

Conclusion

The quest to understand the *"ineffable, environmental whole"* has led us to search for various components of a model that might enhance our comprehension of this complex system. The philosophy of the *'Total Landscape'* serves as a crucial precursor to grasping *'Total Ecology'* and the even broader *'Total Environment'*. The landscape, where humans reside, is just a fragment of the entire environmental whole.

Both the *'Total Landscape'* and *'Total Environment'* are unique human perceptions of the universe. It's important to remember that any model we create is essentially a caricature of reality, an organized structure of human perceptions. Humans are uniquely capable of modelling the environment in this manner.

Moreover, while computers can aid in understanding the environment's complexity, they have inherent limitations as mere tools. The data input into these systems is subject to human errors and biases, and thus, the output is equally susceptible to these flaws. Current computer modelling capabilities are constrained by human frailty, and also by the necessity to organize data in a structured manner that aligns with our modelling constructs.

'The Total Landscape' philosophy, while seemingly ambitious, is far from confined to a single discipline. It is a collective effort, with contributions from various fields, aiming for a holistic understanding of the environment. Every individual participates in the landscape, contributing to its diverse tapestry.

Davis introduces an additional dimension to *the Noosphere* by considering the spiritual and intrinsic values embedded in human interactions with the environment. This perspective emphasizes the importance of recognizing both instrumental and intrinsic values, which underpin technocratic artifacts in the relationship between humans and the geosphere. By integrating these values, we can foster a more comprehensive and ethical approach to environmental stewardship.

In the context of *'Total Ecology'* and *'Total Landscape'*, the integration of socio-ethics and land ethics is vital to developing a comprehensive global environmental ethic. This approach is a promising first step towards achieving a holistic understanding of environmental ethics, encompassing the atmosphere, seas, and lithosphere.

By embracing *'The Total Landscape'* philosophy, we can foster a hopeful future where ecological and economic considerations are balanced and shown in peaceful individuals living in harmony with each other; social harmony. This comprehensive approach ensures that we recognize the interconnectedness of all life forms and the importance of maintaining a harmonious relationship with our natural surroundings. Together, we can strive for a sustainable future, ensuring the survival and flourishing of all species.

Acknowledgements

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