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The Art of Knowing



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A2 Epistemology: The role of sensing and thinking in knowing

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An Evident Need of Our Time

Is epistemology optional?

A provocative question, perhaps. In my personal experience of formal education – representing a not-insignificant 16 years of my life – epistemology only peripherally factored in importance, it's formal engagement only featuring in my mid-twenties. This is to say that up to a certain point, all of the literacy, mathematics, history, science, language, arts – all of these were taught in such a way as to seem 'free' of epistemological considerations. For much of our early educational career (i.e. through childhood and young adulthood) this is clearly essential – as an engagement with epistemology requires a certain maturity of cognitive development and reflective capacity. It is quite remarkable, however, that once the self-reflective learner emerges, epistemology as a subject of study is not engaged along side the sciences, studies in medicine, politics, economics etc. which become shaping influences in all of our lives. The seemingly optional stance taken to epistemological inquiry continues beyond the bounds of formal education to be currency in much of mainstream cultural life. We arrive back at the initial question; is epistemology optional?

Consider the following statement by the author and educator Parker Palmer (1993, p 1) ;

“Every way of knowing becomes a way of living, every epistemology becomes an ethic”ⁱ

This far-reaching statement strikes me as being poignantly relevant for several reasons.

Firstly, we have on any given day access to a number of accounts of events in both the human and natural worlds which reveal threats to the integrity of social and ecological systemsⁱⁱ. In many instances, concerted efforts are extended to ameliorate, mitigate or diffuse these potential threats. However, the question arises as to how often, in seeking the source or solution to the evident dissonances experienced in our everyday lives, an investigation of our 'conventional epistemology' is undertaken. How often do we find a call to investigate and re-evaluate the very epistemological roots that inform our individual and cultural actions? These questions bring me to the second significant aspect of Palmers' statement, one that I have already alluded to above.

For quite some time philosophy and epistemology have become sequestered in university departments, often as specialized branches of the social sciences undertaken primarily by that group of professionals we class as *academics*. Rarely do we find mention of

the ‘cutting edge’ discoveries in the realms of epistemology, or politicians making reference to important philosophical points of view that are being considered in the shaping of policy – of peoples livesⁱⁱⁱ. Furthermore, when weight of opinion is given to, for instance, science or medical opinion these disciplines are themselves rooted in epistemological frameworks that are very rarely made explicit and are often unexamined. This has radical implications, and raises the third key element in Palmer’s statement, that ways of knowing are *fundamentally* ethical – even when they claim to be ‘objective’ in the sense that this is sometimes meant i.e. of being free of moral or ethical considerations. The implication that lies at the heart of Palmer’s statement is that, far from epistemology being an activity that is best left to academic specialities or even, and this perhaps is more challenging, far from being optional, epistemology is everybody’s business and this because it is *essentially ethical*^{iv}.

If there is truth in Palmer’s statement, epistemology and the epistemological foundation for our way of living – both public and private – requires a much deeper engagement and examination than it is commonly given. In this paper I will, initially, consider a selection of articulations of our ‘contemporary epistemology’, I will reflect on how my own experiences have shaped my relationship to the dominant ways of knowing and will conclude with an articulation of my own stance in relation to epistemology and its ethical implications.

Solve – the great separation

Through a personal journey that engaged the natural sciences and encountered problems in the way scientific knowledge is defined, philosopher Ronald Brady arrived at a realization of the need for a thorough investigation of the basis to our cognitive life. In the book *Being on Earth* (2006), he traces the historically significant developments in the western mind that have given rise to a ‘one-eyed colour blind onlooker’^v approach to science, and the concurrent positivist and empiricist mindset. It was this mindset that Brady met in several professors when he sought to engage in an experiential (sense-based) study of natural phenomena. Brady encountered what still lives in much popular reporting and teaching of science, as well as through education generally, in much of our western culture. This is an inherent distrust of our un-mediated sense life as a door to knowledge about ‘the world’. Brady writes in the chapter titled ‘Direct Experience’;

One of the difficulties with scientific accounts of the world is their apparent insistence on an “objective” reality that cannot be directly experienced, with the

resulting demotion of experience – what our senses make out of the world – to a mere show that differs substantially from “what is really there”. This is something we all know and do not think about very much. (Brady, 2006, p.12)

Brady traces a particularly poignant contribution to this development of consciousness and its view of the role of the senses in cognitive life in the work of Galileo^{vi}. Galileo’s significant act of distinguishing primary and secondary qualities in observed phenomena are often referred to as an essential contribution to the development of modern science, of the modern scientific method. Brady refers to this moment as that of the “*demotion* of direct experience” (Brady, 2006), a demotion resulting in the fact that from the time of Galileo “Man begins to appear for the first time in the history of thought as an irrelevant spectator and insignificant effect of the great mathematical system which is the substance of reality.” (Burt, 2003, p.90). It is this relegation of the subject and his or her unmediated sense experience to a secondary (and either insignificant or potentially inappropriate) role in the acquisition of knowledge and truth that Brady wrestles with in *Being on Earth*.

To a large extent the experience of being a subject separate from a world of objects – many of which seem to not present their essential being to our senses – seems self-evident. It is, as it were, the nature of reality we emerge or mature into as a *given*. This ‘naïve realistic’ stance to the perceived world lies at the basis of much of modern cultural experience. It is the experience that I have of being a distinct subject who perceives a world of objects separate from myself and external to each other. Furthermore this world seems self-evidently to exist – to be *there* – without my contributing to its manifestation in any way. On the contrary I experience it as manifest and myself as a (on the whole) passive receiver of impressions arising from my encounter with it. There is, however, more to this experience than meets the eye.

Cognitive Amnesia

The problems – of knowledge, of philosophy, of science, of living – that derive from the subject/object divide, upon which both our everyday cognition as well as our disciplined scientific research are founded, have been articulated at length by a wide range of authors. It has occupied the human mind (and heart!) from the time when the medieval view of Man as Microcosm of the great Macrocosm began to wane. The one view essentially gave way to the other. Though it does a disservice to this vast chapter of human thought and expertise to not

go deeper into the various voices who have engaged the significant issues raised regarding the nature of knowing, of consciousness, and of conscience, there is not the space in this paper to do so. Suffice it to say that since the time of Galileo^{vii} we have struggled with the problem of whether it is either our *thinking* or our *sense activity* that can be relied upon to give us ‘true’ knowledge of our own unique self, and the universe in which we find ourselves.

Coupled with this deep-seated problem is that of subjective versus objective knowledge, articulated by Brady so clearly in his work. In the twentieth century, work done in the history and philosophy of science added new light to these thorny issues. Henry Bortoft is one author who has made significant contributions to the problems of knowledge. Setting out to look, from a philosophical point of view, at the way in which J.W. Goethe approached his studies in natural science, Bortoft has shed light on significant aspects of our cognitive life.

Using an ambiguous figure of what appears to be a “random patchwork of black and white areas” in a circular frame, Bortoft (1996, p.50) presents a very striking experience of the relationship between our *sensory* activity and our *thinking* activity. After a time, and with some intentional activity directed toward the image, a figure emerges from the previously chaotic ground of black and white patches. A giraffe’s head is ‘seen’^{viii}. There is much to be gleaned from this experience, as in time the initial effort expended to attempt to see some organization within the seeming chaos of black and white shapes, which gives rise to ‘seeing the giraffe’ – eventually reverses so that a considerable attentional effort is required to *not-see* the giraffe. This becomes a bridge to the realization that whereas much – in fact the majority – of our everyday cognitive life is rooted in the experience that we encounter the world and its objects as if they were just ‘there’, in actual fact what we are no longer aware of is the organizing activity through which these objects become apparent. The difficulty is that we are no longer aware of that side of the cognitive act which contributes to the ‘seeing’, as this is no longer reliant on an activity of will. Bortoft refers to this conundrum as ‘cognitive amnesia’ (1996, p.139) – amnesia because in our cognitive perception as we ‘naively’ experience it, we no longer are conscious of the fact that we only see or experience anything due to the *organizing idea* that imbues with meaning the otherwise chaotic life of pure sense perception. I quote Bortoft at length in what follows due to the succinctness of his explanation, and the significance that this has for cognitive life;

All scientific knowledge, then, is a correlation of *what* is seen with the *way* it is seen. When the “way of seeing” is invisible...then we live on the empirical level where it seems to be self-evident that discoveries are made directly through the

senses. In this ‘natural attitude’ we have no sense of our own participation, and hence we seem to ourselves to be onlookers to a world which is fixed and finished. Forgetfulness of the way of seeing is the origin of empiricism, which is still by far the most popular philosophy of science, in spite of all the discoveries in the history and philosophy of science which show that it is a philosophy of cognitive amnesia. (Bortoft,1996, pp138-9)

The realization of the nature of cognition revealed in the above, and developed much further by Bortoft in his book, has massive implications for consciousness – be it scientifically engaged or otherwise. Bortoft’s articulation of the role of the *organizing idea* in cognitive perception – only briefly touched upon above – allows him to come to the striking realization that “we live within a dimension of mind which is as invisible to us as the air we breathe” (Bortoft, 1996, p.141)^{ix}. This realization could profoundly influence the way in which we do science, and indeed the way in which we engage in everyday life – Bortoft is clear that fundamentally the same mode of consciousness is active in both activities^x. It allows us to posit the idea that in order to address the issues we encounter in the realms of nature and society that are inimical to health and wellbeing, we would be wise to undertake a concerted investigation into the aforementioned ‘dimension of mind’. As with Palmer’s statement above it suggests that working to make our epistemology explicit is a crucial step in becoming ethically responsible for our stance in the world.

A Collective Disease

Where Brady highlights the origins of the ‘split’^{xi} and Henri Bortoft follows at great length and with true virtuosity the epistemological intricacies of the contemporary mind, Georg Kuhlewind is, I feel, an essential thinker to mention in the present context due to the way in which he has examined and described the process by which this state of affairs has developed^{xii}. He does so through a study of both the biographical and historical development of consciousness, as revealed through such diverse phenomena as the development of language and speech, the phenomenology of the processes of thinking and perceiving and the nature of art. Kuhlewind’s conclusion, reminiscent of Bortofts *cognitive amnesia*, is that modern consciousness is diseased. This quite striking pronouncement appears and is elaborated at some length in his book *From Normal to Healthy* (1983). Kuhlewind describes the diseased consciousness as being a collective disease - and as such it generally goes un-recognized. Having a certain resonance with Bortoft’s articulation of everyday cognition, i.e. a cognition that no longer experiences the role of thinking in the objects we perceive and therefore mistakes the

perceived object as a *given*, Kuhlewind attributes the causes of the disease to mistaken experience or mis-identification. His argument is rooted in both historical (cultural) and individual (developmental) observations which differentiate between two levels of consciousness. The superconscious, Kuhlewind proposes, is the realm from which all other elements of consciousness arise. The superconscious is the realm of the living activity of the 'I' of the human. As the living, dynamic source and seat of consciousness the superconscious is not generally witnessed or included in our account of our experience because of its primacy and the fact that it is the very wellspring of consciousness itself. In trying to illuminate the illusive and difficult task of bringing this aspect of consciousness to experience one encounters such sayings as 'you're looking for the ox you're riding on' (Kuhlewind, 1988, p. 53). In Zen Buddhism koans were used to engage the mind in such a way that that which is not normally experienced was revealed through a type of *metanoia* brought about by the intense contemplation of the phrase. Kuhlewind offers something of a koan for our modern mind with the phrase "the past *is*, the present *becomes*" (1988), a phrase which seeks to point consciousness toward its source as well as highlighting the challenge of experiencing the superconscious *becoming* of our everyday awareness. The question arises from the above; how then can we say that the superconscious exists if it cannot be experienced directly?

Let us look at how the superconscious may *indirectly* be revealed. Kuhlewind points toward such a possibility with the question: "how can a being who neither speaks nor thinks learn words, language and thinking?"^{xiii} (Kuhlewind, 1988, p.25). This is for linguistic science quite a conundrum to this day. The first words that a child speaks must be learned without words or explanations!

Children understand their first words directly, without words, intuitively. Or, to put it another way, they understand through such a deep internal imitation of the speaker that they 'imitate' not only the words but the meaning of the intended speech. They identify themselves with the source of speaking, which is the 'I' of the speaker. They have no other way of understanding anything: no explanations are possible. (Kuhlewind, 1988, p.25).

Through the above exploration, much abbreviated it must be said, Kuhlewind goes on to conclude that;

By observing the child's acquisition of speech and thought, we can see that this process requires the faculties of thinking, feeling and willing in order for the child to develop into a speaking adult. Yet these faculties function quite differently in the child and adult. We might say that they are not yet separated from one another

for the child, but form a single faculty...it might be called a superconscious ability.(Kuhlewind, 1988, p.28).

From this example of early speech acquisition Kuhlewind goes on to follow the development of consciousness whereby these initial superconscious faculties and capacities give rise to formations and habits of thinking, feeling and willing which are no longer form-free but very much individualized and often quite fixed or formed (Bortoft's ambiguous image of the giraffe was designed to illustrate this process). This realm of soul is designated by Kuhlewind as the *subconscious*. Everyday consciousness, for the adult at least, is positioned between the two realms of consciousness and – as in the example of cognitive perception given above - everyday experience is generally oriented toward the finished forms of thought and feeling and does not experience that activity by which these contents of experience arise. It is the superconscious from which the everyday contents of consciousness are surveyed and witnessed but as consciousness is conscious of these contents and not of its present awareness, the former has the characteristic of being much more 'real'. Kuhlewind's far-reaching study can be encapsulated in the sentence "Our consciousness is a past consciousness, conscious of its own past." (Kuhlewind, 1988).

Toward Conscious Participation

I began this paper by asking the question: Is epistemology optional? In pursuing that question I have arrived at the following; in the realm of science (and in fact for our everyday cognition), the 'objects' of our awareness are experienced as 'given', the process of consciousness that 'objectifies' them in the first place is not experienced (Bortoft's *cognitive amnesia*), the self (i.e.the scientist) lacks true self-experience due to the 'disease of consciousness' (Kuhlewind) and comes to doubt its own existence^{xiv}, the superconscious capacities out of which self and object arise are no longer experienced and 'reality' becomes ever more displaced into an abstract, quality-less realm accessible only to the dis-embodied mind (Brady). This state of affairs is further complicated by the fact that questions of ethics with regards to our knowing activity, and the manifestations of our knowing in our actions, has also been subject to the great separation – left to the discretion of the individual scientist or relegated to a 'specialist' realm of philosophical enquiry. Kuhlewind sums up the above in the statement that;

Science has been established on a level of consciousness where it cannot be adequate to the reality of Nature and the human Being. Therefore it is necessary to

develop a meditative science. (Kuhlewind, 1993, p.5).

What would such a science look like? I give some indication to the way in which I would propose an answer to this question by giving to this small section the title *toward conscious participation*. A science of *conscious* participation must grow out of the ever-renewed root of epistemological reflection and self-reflection. With an awakened awareness of the tendency toward cognitive amnesia, or of the dynamic of initially superconscious insights becoming subconscious habits of perception and thought, epistemology becomes a *practice*. It must exercise both the thinking and the sensing human being in a breathing rhythm of awareness and attention, striving in all instances to develop a way of seeing adequate to what is being seen. The consciousness engaged in *participatory* ways of knowing must have an eye on the moment when attentional activity, having worked to generate a point of intensification, must sacrifice itself in order to be receptive to insight arising, as it were, from the 'other'. The flowering of insight bears fruit when it informs the actions and intentional activity of the knower in the field of lived experience. The expression of this essence derived from the process of cognition described above need not be limited to the field of *science* as this term is currently understood, for what has been described above will be recognized by many as a process familiar to those engaged in artistic activity. With this insight we arrive at a very poignant possibility for the development of ways of knowing adequate to the Human Being and Nature. The elements of such a way of knowing need to be defined further, and from that there must arise a method. This will be explored further in what follows.

Pathways

A science of conscious participation requires that *we* participate. In other words, what becomes essential in a science that is self-reflective is that the self is reflected in the articulation of that science. In this present context, this means that I propose, before going further with what I have discussed thus far, to place myself in the picture. My own struggles and insights are present in what has been sketched out above – it is a thought-organism grown out of my own experience. Therefore, this pathway must, as far as possible, be made explicit.

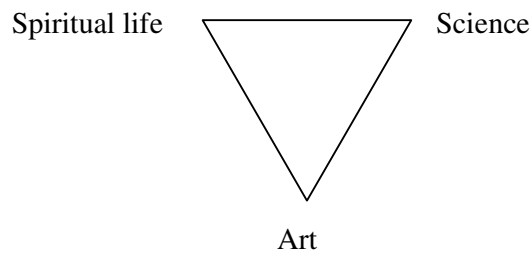
I am of the opinion, as may be evident in the path I have sketched above, that epistemology is *not* an option. I arrived through my own life experience to feel the truth in the statement that science, encountered in its popular sense, was inadequate to reveal the reality of Nature and the Human Being. The outworking of the kind of thinking that underlies

contemporary science evidently resulted all too often in fragmentation and the degradation of life. I experienced this first hand in many years of travel through Asia, Australia, North America and Europe. The experiences and the dilemmas encountered during these journeys provided the impetus for my own studies and reflections, and the epistemological insights summarized above have played an invaluable role in my being able to identify possible pathways towards more 'adequate' ways of knowing.

By the age of eighteen I had developed something of a distrust of *thinking*, as the 'pale cast of thought'^{xv} seemed somehow at the root of the very many social and environmental ills that came ever more to the surface of my awareness. As a result, there followed a period in my life where I dove deeply into an experiential exploration of the world, a time rooted largely in the life of the senses, in which I traveled and lived in a number of countries very different from my place of origin. This time was one devoted to the immediacy offered by the rich diversity of sense experience encountered in new cultures and environments. After some years there arose, however, a new tension from this time of travel and, coming across the following passage in my mid-twenties, I can say that the tension was rooted in the very state described therein: "a thoughtless traveler and a scholar living in abstract conceptual systems are equally unable to have rich experience" (Steiner, 1995, p.101). What I needed, quite personally, was a way to orient myself in relation to my own experiences - still largely fragmented and disjointed - and to a culture deeply rooted in an epistemology of separation. The question that grew to be very strong in my mind was very much in line with that alluded to by Kuhlewind above: what way of knowing is adequate to understand the reality of the Human being and Nature? The pursuit of this question led me to a significant encounter, an encounter with a way of knowing articulated in the form of an image.

Tria Principia

Reproduced in Appendix I (page 13) is an image from the work of Heinrich Khunrath, a physician, hermetic philosopher and alchemist from the 16th century. The image encapsulates within the circular frame those elements deemed necessary by Khunrath and alchemists of the time for progress on the path of knowledge. These are depicted in the three primary sections of the emblem (see Appendix I for the caption for this emblem that appears in Alexander Roob's book on *Alchemy and Mysticism*). In brief we find in this emblem a depiction of the tri-unity of *spiritual practice*, the *study of natural phenomena*, and *art*. To see this visually, in a condensed form, we see in the emblem the following;



I propose that the emblem can be understood as follows, bearing in mind that images such as this are complex and reveal multiple layers of meaning through repeated study.

It was understood by the natural philosopher of the time that our insights come via ‘grace’. We can work, strive, question and pursue knowledge of the world though we must at all times be aware that our knowledge arises by grace. Thus a conscious, contemplative attitude is essential, and is in fact the first step in the alchemical process of enquiry^{xvi}. We find this emphasis in contemporary language in Kuhlewind’s articulation of the superconscious and its role in the formation of both everyday consciousness and scientific consciousness (both of which function on the same ‘plane’, though differ in intensity). Working in the laboratory, between the pillars of experience and reason, we penetrate the mysteries of nature – not in order to solve them (as we have set out to do in subsequent times) but to *reveal* the mysteries and to become better agents in the service of the evolution of the whole (Klocek, 2005). Referred to as a whole as the Art, the hermetic methodology included the instruments of expression (depicted as musical instruments in *amphitheatrum*), expression both of insights derived from the Work and of the divine harmonies informing Natura’s creative unfolding (the harmony of the spheres). This then is an epistemological process comprised of three mutually interpenetrating activities each with their own ‘laws’, methods and materials.

In Khunraths’ emblem I suggest that a way of knowing is articulated which embodies an integrity that was subsequently fragmented and lost due to changes in human consciousness (see note vii). This change represents a massive chapter in the history of ideas and has been referred to in several passages above. The approach to science articulated by Brady in *Being on Earth* has, in this light, grown out of the fragmentation of the essential tri-unity depicted by Khunrath. My own experience of this fragmentation came in the course of my education when I realized that I would, at some point, be required to choose between a path of study in either the arts or the sciences. It did not seem at all possible to be able to major in both. The disciplines of the artist and the scientist are still largely viewed as being separate and incongruent in method and intent^{xvii}. To draw Khunraths image as a depiction of

the relation of these disciplines in the modern sense, we would need to isolate the three elements into quite separate compartments. Fragmented and compartmentalized, science, the spiritual life (including religion) and the arts have been relegated to different quarters, and it has been science that has claimed the authoritative voice in questions of truth and certainty. This science, severed as it has been from the earlier recognition of the necessity of engaging the superconscious through contemplative practice and prayer, has become inimical to these realms (note xiv).

When I first encountered this image and the methodology it articulated, I felt that here was an epistemology and a method which held within it certain checks and balances. It asked of the individual student of Nature and of the Human being three very important questions; 1) what is your study/research? 2) what is your art? 3) do you cultivate a conscious connection to the spiritual source of both of these? Through *study*, by which I mean science in its commonly understood sense as well as in the sense of the study of the insights of those who precede us, we can develop our thinking and cognitive capacities. I would also emphasize the activity of epistemological self-reflection in this realm. Through the *arts*, we bring to expression both something of our own personal experience and strive to lift this to speak of/to that which is universally human. Through the *spiritual life*, I understand this to mean both a contemplative method with regards to our subject matter as well as a conscious attitude of mind and heart that is cultivated when we apply ourselves in either of the aforementioned ways. As Arthur Zajonc has described so clearly in his article *Love and Knowledge* (2006) a contemplative methodology in the sense meant above includes and seeks to cultivate an ethical stance to both ones science and ones art. It is the contemplative method and practice which places our work on an ethical ground and ensures that it doesn't get caught in the traps of either an objective, impersonal and 'value-free' science which becomes antithetical to life^{xviii}, or an artistic practice which merely embellishes the subjective, personal and egoistic life of the individual.

I am not suggesting, by introducing Khunrath's emblem to the question of seeking for an epistemology adequate to the reality of the human being and nature that some re-invigoration of medieval thought is in order. Nor, however, do I suggest that the alchemical worldview is merely of historical interest. Rather, I have found that the theory of knowledge being made explicit in the *amphitheatrum* emblem offers a rich reference and provides valuable insight for someone seeking, in a very different period of history, for methods of overcoming the fragmentation so prevalent in much of modern thought.

The Art Of Being Human

It is widely recognized that the separation or distinction between science, art and religion (the spiritual life) is a recent event in the history of culture and consciousness. This separation (or *solve* as I have chosen to refer to it above) arose along with the development of rational thinking (Dahlin, 2009). Rational, discursive thinking then became the dominant capacity applied to questions of knowledge and claimed for itself a greater authority in being able to arrive at the truth regarding self and world than either the activity of the artist or the practice of spiritual contemplation. This has been the case for several centuries^{xix}. However, in Khunrath's *amphitheatrum* we find an articulation of the intrinsic relationship between the contemplative life, science or study and artistic expression^{xx}. Furthermore I would argue that Khunrath and his contemporaries would see it as deeply compromising to the path of knowledge to separate these in any definitive way. It would be, again to reference their language, to undertake the *solve* or separation in any process of either consciousness or laboratory operation without the *coagula* or re-synthesis. The key is that both are necessary and the role – referred to in alchemical terms as the Art^{xxi} - of the *philosopher* is to know, whatever the field of practice, when to engage in which activity and with what method.

The Art of knowing, as I see it, is the following.

It is evident from what I have covered thus far that I am advocating a stance that no one way of knowing is adequate to understand the 'mysteries' of the human or of nature. Due to the significance of the role that our way of seeing plays in our cognitive life, rather than developing one *way of seeing* which is then applied to phenomena in all their vast diversity - which inevitably leads to the homogenisation of *what is seen* – I feel that what is needed is an ongoing, self-reflective practice that seeks always to *adequate* our way of knowing to the diversity of phenomena we meet through experience^{xxii}. Furthermore, this process needs to include conscious recognition of and contemplative engagement with the realm referred to above as the superconscious - the source of our insight and place of potential true Self-experience. Finally, the expression of this insight in creative action moves the fruits of our knowing from our personal realm to the realm of culture and nature. My own epistemological perspective, what I will call the Art of knowing, is directed toward a braiding of science (study), artistic practice and expression, and the spiritual (contemplative and meditative practice). I feel that such a method and practice has the potential to fructify our activity in education and social development, health and well-being, agriculture and culture.

Appendix I : colored plate from Heinrich Khunrath's Amphitheatrum sapientiae aeternae



“We can awake...through constant prayer in the oratorium (left), and through unstinting work in the labororium (right), which rests on the two pillars of experience and reason. The oven in the foreground admonishes us to patience, and the gifts on the table remind us that sacred music and harmony are supposed to accompany and define the Work.” (Roob, 2001).

Notes

ⁱ quoted by Arthur Zajonc in “Love and Knowledge: Recovering the Heart of Knowledge through Contemplation:”, p. 3

ⁱⁱ It is not the intention to go into these in detail in the body of this paper, we need only consider the many themes that ‘headline’ in our current culture of reporting – pollution, political turmoil, climate change, peak oil and its implications, genetic modification of living beings, hunger etc.

ⁱⁱⁱ It is the authority of science that is called upon in contemporary political discourse or decision making, no longer the authority of the church and certainly not the authority born of self or collective epistemological reflection.

^{iv} The distinction that is being made here is a direct reference to Palmer, i.e. one that contrasts a separation of ethics as an autonomous, specialist discipline or consideration that is optionally brought to bear on our knowing activity with the realization that the activity of knowing, and that which emerges from that activity as action or insight, is essentially ethical in its implications.

^v See Ernst Lehrs, *Man or Matter* for a further elaboration of this term. It refers to the resulting mind-set that the scientist adopts if rigidly following the tenets of a science based on the removal of the subject (the subjective) in the attempt to obtain objective, universally applicable knowledge of the world.

^{vi} Galileo’s thinking, and its subsequent influence on modern science is complex. E. A. Burt gives a thorough description of Galileo’s view that “nature is the domain of mathematics”(Burt, 2003) – an essentially epistemological statement – in *The Metaphysical Foundations of Modern Science*. Galileo, in this light, is one of several influential thinkers whose science derives from a philosophical stance we could call mathematism.

^{vii} I think it important to reference Galileo in this manner as rather than to say ‘since Galileo’ I have chosen ‘since the time of Galileo’ to indicate the possibility that Galileo was *one* exponent of a shift in consciousness that was, on all levels – physiologically, psychologically and spiritually – giving the human subject a greater awareness of themselves as separate cognizing beings, centred within their own individual point of view. This idea references the research of Rudolf Steiner and the substantial evidence for the evolution of consciousness articulated in his own work as well as in the work of Ernst Lehrs, Owen Barfield, and others. The choice of wording is such as to indicate that the shift in consciousness is a supra-personal event, Galileo, however, is one of the earliest and clearest proponents of modes of thinking arising from this new experience of self and world – with profound implications. Burt writes; “The form of the primary-secondary doctrine in Galileo is worth a moment’s pause, for its effects in modern thought have been of incalculable importance. It is a fundamental step toward that banishing of man from the great world of nature and his treatment as an effect of what happens in the latter...” (Burt, 2003, p.89).

^{viii} see page 50 of Henri Bortoft’s book *The Wholeness of Nature*.

^{ix} The role of what Bortoft refers to as the organizing idea in cognitive perception has also been revealed through the work of Von Senden, Oliver Sacks and others. These studies, which focussed on the experience of individuals who were blinded from birth but whose sight was eventually restored through medical science are relevant to mention. Annie Dillard makes reference to Von Senden’s research *Space and Sight* when she writes; “for the newly sighted vision is pure sensation unencumbered by meaning”(Dillard, 1974).

^x see The Organizing Idea in Scientific Knowledge, p.138 in *The Wholeness of Nature*

^{xi} The term ‘split’ is used here to refer to the separation of perception into primary and secondary qualities, the separation of thinking and perceiving and the development of the subject/object consciousness. “The world is...a non-dual world that we split – or is split by our ‘ego’ or ‘me’ consciousness – into subject-object, self-other, friend-enemy, humanity-nature and so on” (Kuhlewind, 2008)

^{xii} Kuhlewind’s statement that “ People live in the same way they cognize...consciously or unconsciously, they always shape their world according to how they know it. Cognition creates reality in this way and, as far as it is creative cognition, it makes morality possible.” (Kuhlewind, 1988) resounds strongly with both Palmer and Bortoft.

^{xiii} see Speaking and Thinking, p. 25 in *From Normal To Healthy*

^{xiv} we refer to the Human *being*, and in earlier times nature itself was perceived to be populated by *beings*, whose works were the phenomena of nature perceived by our senses. As a result of the quantitative way of seeing (Bortoft) nature is no longer understood to be people by beings but is the manifestation of forces and physical processes lying beneath their manifestation to our senses. The Human *being* has also largely disappeared from view and is at best an epiphenomenon of genetics and complex biological processes.

^{xv} Reference to Shakespeare's *Hamlet* Act 3, sc1: "And thus the native hue of resolution/Is sicklied o'er with the pale cast of thought,/And enterprises of great pith and moment/With this regard their currents turn awry,/And lose the name of action."

^{xvi} the alchemical mantra *ora, lege, lege, lege, relege et labora* is often quoted, notably with *ora* preceding either of the other two endeavors.

^{xvii} Goethe is a clear example of a scientist/artist who made significant contribution to both fields of human endeavor but who is largely given credit and respected for either his artistic works or his scientific method, but rarely both.

^{xviii} "Surely, science has brought enormous advances, but we cannot turn away from the central fact that the modern emphasis on objectification predisposes us to an instrumental and manipulative way of being in the world." Zajonc, 2008, p.3

^{xix} There have been individuals who have developed their work 'bridging', as it were, two of the elements of this triad. Examples are Kandinsky and his book *On The Spiritual in Art* and scientists such as Kapra and Zajonc in the way that contemplative/spiritual practice and insight informs their work (Dahlin, 2009). It is more unusual that an individual is working, and recognized, for contributions in all three areas of science, art and the spiritual.

^{xx} Emerson is noteworthy in this respect: "All becomes poetry when we look from within . . . because poetry is science, is the breath of the same spirit by which nature lives. And never did any science originate, but by a poetic perception" (p. 364).

^{xxi} Historically alchemy was referred to as 'the Art' – a term used to encompass the work in the lab, the practice of medicine, the theoretical and spiritual disciplines etc. It is striking to note that disciplines that in our contemporary landscape are deemed *sciences* were, formerly, referred to as arts – related to the Art – alchemy (I have referred to medicine already in this context). Rudolf Steiner is one thinker in recent times who has made the significant gesture of referring to Education as an Art, and his work in medicine and agriculture both exemplify a highly developed artistic/creative way of knowing founded squarely on an expanded scientific method. It is in this sense that I use the term Art and contrast it to the arts (visual, plastic, expressive etc) in a contemporary sense.

^{xxii} Examples of a research practice that engages different ways of knowing are found in contemporary articulations of Goethe's methodology. This method engages the classical Aristotelean elements (Earth, Water, Air, Fire) as modes of seeing and reflecting and is a very concrete example of multiple modes of knowing applied to the study of natural phenomena. Of note in this regard is the article by Nigel Hoffmann titled The Unity of Art and Science, published in *Goethe's Way of Science: A Phenomenology of Nature* (1998).

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