

IMPLICATIONS FOR OUR PRACTICE OF FTA OF THE 20TH CENTURY REVOLUTION IN ONTOLOGY AND EPISTEMOLOGY

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Abstract

In the 20th Century, several strands of thought came together and matured into a wholesale revolution in our understanding of the nature of reality (ontology) and what is involved in knowing it (epistemology). When these two are taken together, a new understanding of the nature of human persons and our role in history also emerges. These three shifts in human understanding have dramatic implications for human aspirations, intentions and conduct in the 21st Century, including the practice of futures-oriented technology assessment (FTA).

Because such fundamental changes in our frames of reference are rare, they are not well understood. Therefore, the Introduction explores the core concerns of this paper – the transformation of human frames of reference and the implications for human knowing and living. Two ideal types of an ontological/epistemological stance and the implications for our self-understanding as persons are set out and contrasted in Section 2 – the first, typical of the modern Industrial world in which FTA arose and the second, the understanding that is now slowly replacing the first. Section 3 explores the characteristics of the FTA practice that are consistent with the emerging sensibility. The section ends with a summary of the core challenge of the emerging view of reality, knowing and persons for our practice of FTA, in the early 21st Century. The underlying intent of this paper is to make this challenge more visible in order that it may be seen, explored, debated, understood and, ultimately, addressed.

Keywords: epistemology, ontology, persons, cultural framing, world-view, cultural paradigm, cultural change and evolution, overshoot, ideal types, consciousness, knowledge, knowing, implications, FTA

1 Introduction – Understanding the Concerns of This Paper

This paper flows from the work that has long been central to my life – learning to understand and assisting others to understand ways of experiencing and being in the world that are profoundly different from those I and they, through unconscious socialization, came to take for granted as both real and normal – the stand against which all else is to be measured. The two questions at

the heart of my life are these: (1) What is involved – intellectually, psychologically, personally and practically – in learning to see one's own inherited culture as one human option among others, without falling into a mindless relativism or taking one's own culture as complete and definitive? (2) How then shall we live, in light of this new perspective on the evolution of human life? I have come to call the issue of learning to relativize one's own cultural frame of reference and to experience the world quite differently within a new frame of reference the *cultural framing* issue. It is, in my view, the most fundamental issue facing humanity.

Why have I come to see this issue as central to good practice in the 21st Century, not only of FTA, but as persons, families, communities and human cultures? The essential reason for this judgement is that, as persons, families, communities, organizations and jurisdictions, human beings, we act on the basis of what we, at the time, take as reliably known. This is the case, of course, whether or not what is taken as known is actually true. In matters large and small, history is littered with examples of falsehoods being taken as the basis of action because the actors *knew* it to be true. Sometimes our ignorance matters not – we get away unscathed. However, in most instances this planet is not very forgiving when we act on the basis of false knowledge. Because, literally, *mind matters*, much hangs on what we take to be true; possibly the whole human future.

Given that "*our perspective on the world determines how we behave in the world*,"¹ it follows that the act of changing our minds is one of the great drivers of change in human history. If, as a growing body of research suggests, we live during a time when a critical mass of human beings are slowly and largely unconsciously changing their minds about reality, history and their place within it, then we must learn to explore the wider phenomenon of long-term change, evolution and transformation of human cultures. A deep and general knowledge is required of the ways in which every culture, including our own, frames the experience, knowledge and actions of those who live in and by that culture. We must also understand the conditions under which such cultural frames of reference disintegrate and become ineffective, as well as the conditions required for new and more robust ways to frame experience to emerge.

Such understanding is now required, because for the first time in history the evidence is growing that we must learn to take responsibility for the ongoing evolution of human civilization. To meet this challenge we must become aware of and take responsibility for our knowledge and our knowing at every level of generality of human consciousness and culture – from the daily details of living to their most fundamental ontological and epistemological presuppositions. Such work is at the heart of the work of coming to terms with the cultural framing issue – coming to see, think through and act in relationship to the way our and other cultures frame what we take to be our experience and the possibilities, for good and ill, of the present. Learning to see the whole range of *the possibilities of the present*² is, of course, one way of describing the work of FTA and futures research more generally.

What follows, then, can be read both as a straight up exploration of the cultural framing issue and its implications for a single practice that has its own legitimacy – FTA; and as an example of the kind of work that must be undertaken in virtually every sphere of our lives and cultures in the 21st Century.

Having opened the space in which I wish to position this paper in theoretical and abstract ways, I now wish to clarify that space by reviewing two actual situations in which well-meaning, but inappropriate judgements were made because neither the fact nor content of cultural frames of reference of those making the judgement were taken into account, or even seen and acknowledged.

1.1 *Learning From Deemed Failures*

The nature of the challenge involved in recognizing and dealing competently in the cultural framing issue can be seen in the following two actual situations. Each is an example of new thinking that is judged to be a failure by established authorities who unconsciously live by a dominant inherited frame of reference. In both cases those in authority did not, indeed could not, imagine that the work they were assessing required that they, as assessors, recognize and be open to accepting an emerging, but not yet widely accepted, frame of reference. The first is the near failure in the life of a great 20th Century Canadian scientist – J. Tuzo Wilson. The second is my first professional experience of being judged to have failed.

J. Tuzo Wilson and Plate-Tectonic Theory

Today, the late J. Tuzo Wilson, long-time Professor of Geophysics, University of Toronto, is widely recognized and celebrated as one of the giants of Canadian scientific research. He is particularly remembered for original contributions to the emerging theory of plate-tectonics from the 1930s to the 1970s. Since plate-tectonics is now scientific orthodoxy, we tend to ignore the struggle he faced to establish this sensibility as legitimate.

In the 1980s, when he was the founding Director of the Ontario Science Centre, I had the privilege of talking privately with Dr. Wilson about his early years as an undergraduate, graduate student and young academic. Then, he said, the general idea that *over time many things change – evolve –* was slowly being accepted. After all, 1930 was 80 years after Marx, 60 after Darwin and 30 after Freud. However, it takes a long time – decades – for new ideas to sink into the daily consciousness of a whole culture. When Tuzo was still a graduate student, virtually everyone *knew* that while many things could change, the shape of the earth was not one of them. This belief was exemplified in the 1960s to '80s in Prudential Life Insurance's use of the rock of Gibraltar as one of unchanging permanence. This meant that as a young and even middle-aged man, Tuzo Wilson lived on the margins; shunned by established voices as one who was at best odd and, at worst, unworthy of being in the academy. As late as the early 1960s, no established peer-reviewed scientific journal would publish his papers.

I note several lessons that can be drawn from Tuzo Wilson's situation. First, according to the best understanding of the Enlightenment and the traditions of science, he was a living demonstration of what scientists are to do – follow their data where ever it leads, even if it is off their inherited mental maps. Second, we must not rush to condemn those in authority. In the early days of any new way of seeing and thinking about the world, there is no sure way to distinguish between new insights formed within an emerging frame of reference and bad work produced within the established frame. Third, established authorities will almost always get it wrong when faced with anomalous views, unless they have developed an explicit awareness of the dangers of overshoot – *staying within a frame of reference that has served well in the past, long after the conditions that made it appropriate have changed*. Fourth, such sensitive checking of anomalous views is rare, even today. Few communities of practice in any sector, or their opinion leaders, have developed the capacity to identify, much less critique, their own inherited cultural presuppositions. Fifth, those who are aware of this bias to privilege unconsciously inherited views will commit themselves to ruthlessly develop their own reflexive capacity – the capacity to take a self-aware and self-critical stance. They will seek to understand and challenge their own inherited ways of experiencing the world, lest they too fall victim to acting on false knowledge and become the occasion of slowing the evolution of emerging frames of reference that enable increasingly reliable human ways of seeing, knowing and living.

The Canadian Social Policy Project

When Pierre Elliott Trudeau came to power as Canada's 15th Prime Minister in 1968, he already had a rich sense that social policy, as then practiced in Canada, was a series of "*patches on patches, on patches.*" Given that social policy had by then grown one categorized program³ at a time over eight decades, his observation was wholly warranted. As a clear and rigorous thinker, he wanted to tidy up and systematize Canadian social policy; to bring a new order out of the chaos he had inherited. In the spring of 1970, he was ready to act. He instructed Gordon Robertson, Clerk of the Privy Council, and Norbert Prefontaine, Secretary to the Cabinet for Social Policy, to hire experts who could develop the new *conceptual framework* for social policy that would create a system from the various bits and pieces inherited by his government.

Bill Dyson and I were hired to undertake what was called the *Social Policy Project*. We were given an eighteen month mandate to re-think social policy in order to construct the required *conceptual framework*. When we asked if they could say more about a 'conceptual framework' than was implied by the literal meaning of the words, we were told, "*No, but we will recognize it, when you produce it.*" This latter is not told to be cute, but to remind us that outside of the academy serious discussion of frames of reference is a very recent phenomenon.

In time, we reported on our findings. In 1971, we said the following things: (1) It was possible to create a conceptual framework out of the concepts, metaphors and logics that underlie today's social policy. (2) We would not do so and had good reasons for not doing so. (3) The essential reason for our refusal was that to do so would be to create a framework of concepts that, once implemented, would have the unintended result that Canadians would be damaged systematically, whereas now they were damaged randomly. That is, many of the good things that happen in social policy now happen in spite of the underlying concepts, not because of them. (4) The conceptions, metaphors and logics on which late, modern Industrial social policy has rested are not fit for the future; they do not and cannot express the best that is coming to be known about human persons, communities and history – the subject of social policy. (5) What is needed is first to articulate clearly the emerging understanding of persons and then to develop a systematic framework of concepts, metaphors and logics that express this new view.

In a language available to us today, but not then, we said, in effect, that what the Government of Canada needs is a new paradigm of *the person* around which to create social policy that is fit for a Canada that is emerging into a truly post-Industrial society.

But, of course, we could not say this. In the spring of 1971⁴, at least in Canadian government circles, the language of 'paradigm change' was not yet in good currency. Nor was the language used by historians of religion of 'world views' or 'belief systems' or 'experiencing systems.' Nor was the language of an emerging 'Post-Industrial society' available to us.⁵

How then, could we talk of our insights and discoveries? The answer is "*badly and incoherently.*" We were trying to bring to the attention of senior officials of the Government of Canada a point of view that we saw to be vitally important, if highly unusual. Unfortunately, through no fault of their own, it was a point of view that was literally inconceivable to them. The insight that the set of perceptions and ideas they had inherited and lived by these many years was no longer adequate to meet the emerging requirements of the future, was not one that could even be grasped, let alone accepted. In 1972, we faced political and public servant masters who *knew* that whole cultures did not evolve, just as, in the 1930s to '60s, Tuzo Wilson faced critics who *knew* that the earth did not change.

Of course, those to whom we reported had no developed receptor capacity to hear what we were trying to say. How could they have? So stammering tongues met deaf ears; and both in well-intentioned persons. If the above was not enough fuel on the fire, we reported to them – we were subordinate to their superior authority; and an added fact is that in 1971 subordinates could not hold their superiors accountable for their unconsciously inherited patterns of perceptions, thoughts and actions. Given all of the above, the only option for the Government of Canada was to conclude that we had failed them; that we had not done and could not do what it was that they asked of us. The thought of extending our contract so that we might actually do what we knew we could do – develop the conceptual framework they required on the basis of a fresh and powerful understanding of human persons – was a non-starter.

In 2006, it can be more readily understood that the Government's conclusion in 1971 was at once wholly understandable and yet somewhat tragic. Understandable, because even today, the percentage of senior political leaders who can describe, contextualize and relativize their own inherited culture and consciousness is so small that their hard-won skills make no practical differences⁶. Tragic, because we cannot know how our world might be different if, today, Canada had an institutional capacity for what might be characterize as cultural geophysics – a capacity with a thirty-five year track record in the work of making visible, assessing and transcending inherited patterns of consciousness and culture and the forces that are driving change in their essential shape and content. That if such a capacity had existed, history would be somewhat different is not hard to imagine. Among other changes, there might now be a critical mass of Canadians, among others, with a developed capacity to undertake and understand such work. There even might have been an established global network of researchers who, after 9/11, might have written a letter to President Bush that was the analogue of the one written by Robert Oppenheimer to President Roosevelt – *my friends and I think we know enough about what you are up against to be of service*. No such letter was written, because, even today, no such network exists. This matters, because it is becoming increasingly clear that if human civilizations are to survive the 21st Century, such reflexive skills are must-have requirements, and not merely nice-for-you-if-that-is-your-inclination preferences.⁷

1.2 Connecting Cultural Frames to FTA

Lest you think that I have left the subject of FTA behind, allow me to recall the fundamental reason for starting this paper with this Introduction, including these stories. My intention is to alert you as the reader to the type of issue that this paper is attempting to illuminate – the understandable dangers, frustrations and cross-threading that emerge at a time when human experience is being fundamentally re-framed, especially as this process is so slow it is virtually imperceptible largely slow and to this day unconscious.

The connection that I make of such rare, but historic, cultural change to our practice of TFA in the early 21st Century is this. In Foresight Canada's view, (1) Ours is such a time of fundamental, long-time cultural change, evolution and transformation. (2) In every culture, today, such a perspective is still anomalous. Nowhere is it the default view. (3) Nevertheless, the evidence is mounting that every civilization, including our own, is up against the limitations of its own inherited cultural frames. Everywhere, cultural assumptions are being experienced by more and more people as inadequate and even wrong-headed. The 9/11 Commission put it this way, "*Ways of doing business rooted in a different era are just not good enough. Americans should not settle for incremental, ad hoc adjustments to a system designed generations ago for a world that no longer exists.*"⁸

The bluntness of this statement offers a penetrating challenge for us in the FTA community. Are we ourselves increasingly exploring and reflecting in our work the phenomenon of dying and emerging cultural frames of reference? Or are we still seeking to improve our techniques and capacities within our inherited cultural frames of reference and in the service of overshoot – holding these frames together, long after there is ample evidence that we need to move on?

This paper is offered as a contribution to the work of moving on. It is my hope that as a field we in the FTA community will come to experience that ours is not only a time of deconstruction, but one of emergence and co-creation; a time when we are slowly changing our minds about what we take to be known about the full range of possibilities of the present, and this in the service of learning to increase our capacities to take responsibility for shaping a future that is wise, secure, prosperous, inclusive, integrated, sustainable and deeply humane.

Lest this sound maudlin, allow me to share a conclusion of a major piece of work Foresight Canada undertook last year – the only path forward for humanity is one that builds on the 1st Enlightenment – science as a way of knowing is necessarily central to our future. Further, technology is as essentially human as food and sex. In short, FTA is not merely about assisting governments and corporations to make wise investments, it is central to the whole human future.

2. Two Understandings of Reality, Knowing and Persons

As we start this next section, it is important to remember that no culture chooses the ontological and epistemological assumptions on which it rests – the deepest assumptions about reality and human knowing that are reflected in and reinforced by the patterns of its daily life, be they art, architecture, street patterns, fashion, gender relations or structures of authority. Rather, such assumptions are inherited unconsciously as an inherent, if unseen, part of the package of their on-going culture. Should these assumptions change, they do so over generations – again, largely unconsciously.

Ours is the first time in history when even a small percentage of persons are struggling to become aware of the nature and depth of the transformation we are awakening to, while it is still in process. Few citizens even know that their ways of living presuppose an ontology or epistemology, let alone what is presupposed or the roles such assumptions play in their lives. As with paradigm change in science – in normal times explicit knowledge of the deep assumptions of one's work is not necessary. However, in times when one's paradigms are changing, consciousness is required if one is to participate intentionally and avoid becoming a victim of such change. So it is with the deepest assumptions underlying a culture. If it is the case that ours is a time, not merely of change that is global in scope, but of profound change in the depths of our lives, then conscious awareness of such change is required if we are to do more than ride the change to the end of its rope.

I shall proceed by sketching the major ontological and epistemological assumptions of modern Western Industrial culture and then drawing out some of the implications of these assumptions for the Industrial understanding of the person. Then I shall sketch the underlying assumptions that are emerging to challenge and replace the former. Again, some of the critical implications of the emerging assumptions for our understanding of persons will be drawn. The implications of each view for the practice of FTA are explored in Section 3.

I characterize the first view as that of 'modern Western Industrial culture.' By this phrase, I point to the type of culture that existed for much of the 20th Century in such countries as those in Britain and Western Europe as well as in the USA and Canada. Of course, there are important

societal differences within such countries as well as among them. However, at the level of the ontological and epistemic assumptions that dominated these societies, the differences are small and can be overlooked. For the purposes of this paper, we can smooth the curves of the specific ways these assumptions were manifest in particular societies. For us, the similarities among such societies are the interesting feature.⁹

I characterize the second view as that of an ‘emerging post-Industrial culture.’ I use this phrase to denote the view that Western Industrial culture is itself undergoing a transformation that is as deep and thoroughgoing as the emergence of Industrial culture from pre-Industrial cultures. I acknowledge that signs of an emerging ‘post-Industrial’ culture can also be seen in many societies that have embraced Western science and technology and its requisite consciousness. I use the phrase ‘post-Industrial’ in a broader sense than most. I use it as largely devoid of content – merely a place-holder until the core characteristics of the civilization that is now emerging among and within us have resolved into view more sharply and definitively. I find the labels presently offered by so many as the core character of our future – knowledge society/economy, experience economy, learning society, networked society – to be interesting probes but unconvincing as penetrating insights that name the emerging world.

Regarding my characterization of the ontological and epistemological revolution *as a revolution of the 20th Century*, I am well aware that the roots of the Emerging View go back well into the 18th Century – even before Kant – and that many persons have laboured fruitfully since then as contributors of the *revolution of the 20th Century*. The justification for focussing on the 20th Century is more than the need for simplicity. Until the mid-to-late 20th Century it was not at all clear that a wholesale revolution was underway – one that amounts to nothing less than a basis for a new civilization. Of course, in the early 21st Century, this fact is still not at all obvious to casual observers. The discovery of the transformation we are in can be added to the list of the inevitable surprises of the 21st Century.¹⁰

2.1 *Ontological/Epistemological Assumptions of Industrial Culture*

When I characterize each of the following assumptions as an assumption of a whole culture, I do not mean that every person in a culture operates on the basis of these assumptions. No Industrial or post-Industrial culture is or will be that homogeneous. However, I do mean that the assumptions noted are those that operationally dominate the culture; that the culture has been shaped primarily in the images and by the logic of the assumptions identified. In computer language, they are its *default position*.

Further, for any society to have a future that is in essential continuity with its past, the majority of people must continue to find to be deeply satisfying the presently establish ways of living that their assumptions entail. The inherited culture must be able to override any doubts and anomalies. When this is no longer the case, the inherited culture is in a fatal decline – its end can be foreseen. In abstract, at such times the interesting question is: *Will a new culture emerge beyond the inherited culture or will the inherited dominant culture simply collapse?*

To date, most of the research on cultural collapse has focussed on cases of the latter type – cultures that were faced with circumstances with which their inherited ways of living and world views could not cope and within which no new profound insights into the nature of reality emerged as a new basis for living. I do not see this to be the present situation of Industrial societies. In our case, profound and robust alternatives to the assumptions that still dominate our societies have already emerged. I would go so far as to suggest that intellectually the

struggle is essentially over; that most careful observers are in broad agreement with the emerging assumptions as the basis for future seeing, thinking and acting. In the 21st Century, the core work is not to invent the new assumptions we need as a basis for a truly sustainable civilization. Rather, it is to digest these assumptions into our lives and consciousness deeply enough that we come to embody them with a reasonable degree of consistency in all that we are and do. Thus a new civilization will be born within and among us.

I readily acknowledge that there is no example of a living post-Industrial society. I do not even know whether such a culture will come to exist. But it seems to be a reasonable judgement that either the co-creation of such a society will come to be the overriding meta-project of the 21st Century or the conditions for a truly human future will be eroded, possibly to the point of the extinction of our species.

Given that no conceivable post-Industrial future can exist without the extension of Industrial science and its fruits, FTA has a major role to play in ensuring the continuation of the necessary conditions of humane living and contributing to the required evolution of Industrial consciousness and culture into truly post-Industrial forms.

Finally, we shall see below that ontological and epistemological assumptions are co-relative – each implies the other. Therefore, we will proceed by considering the epistemic implications of the three root ontological assumptions of Western Industrial culture – that reality is static, atomistic and materialistic.

Static Reality

I begin by noting that this first assumed characteristic of reality has a very long history in the West – it predates Industrial culture. It was as central to settled, pre-Industrial Western culture as it has become to Industrial culture.

One of the major ontological assumptions of every settled Western society – pre-Industrial and Industrial – is that in its essence, reality is static. Reality is what it is and does not change. Reality is therefore a-historic. As Herodotus understood, to be involved in history is to be involved in change and this, over time, necessarily leads one away from unchanging reality and truth. For this reason, Aristotle's God is "the unmoved mover." To move is to participate in corruption. The really real does not change, because reality cannot change. It follows that "progress" necessarily means that a people turn their backs on history and re-turn with a new passion and clarity to that which is always true¹¹.

A further requirement of a static ontology is that the distinction between the unchanging essence of a thing and its changing appearances must develop. Happily it did. The language of 'essence' in contrast to 'appearance' is still alive among us. Aristotle developed his doctrine of potentiality to account for the difference between essence and appearance.

Further, knowledge must necessarily be both true and certain. In this view, one cannot legitimately claim to know something that later is shown to be false. The concept of 'false knowledge' that I used earlier, is necessarily judged to be a category mistake¹². It follows that if one is less than fully certain, one does not know and cannot claim to know. The challenge to witnesses still heard in our courts reflects this long-dominant view, "*But, are you certain that...*". The implication is clear – any shadow of a doubt disqualifies one's view as knowledge. I note in passing that the claim to Papal infallibility of the Catholic Church also flows logically from truth as certain knowledge of unchanging realities and the added claim that what the church teaches is true.

To the extent that essential reality can be known, knowledge of it must also be timeless and a-historical. Reality is what it is without any reference to persons. It follows that personal and cultural insensitivity is required in order to know. This is the basis of Hume's distinction between fact and value. Facts are about what really is, whereas valuing is a human activity. The timelessly true character of knowledge is also the basis of the claim that scientific knowledge is objective knowledge and that objective knowledge is untainted by any personal knowing. In contrast, within this frame, personal claims to knowledge are seen as subjective. They may hold some value for the one who claims to know, but they have no objective value for or claim on other persons. Subjective views have no currency in the public square.

It follows from this understanding of reality that those who know have authority over those who do not know. Knowledgeable persons have not only a right, but an obligation, to set straight – to correct – those who have got it wrong. The language of 'corrections' still prevalent in our justice system is no accident. It is required. Also required is the assumption that those who hold unorthodox views about important aspects of reality are dangerous and must be dealt with. In a world in which reality is static, serious differences must be recognized as deviance.

It is not an accident, then, that some form of hierarchy is found in all societies which rest on a static ontology. This too is required by the ontology. The logic is as follows. When there is disagreement about the nature of truth, there must be some definitive way of settling the argument and determining which view is right. The way to do so is to ask someone who knows more; someone who has more authority; someone who is more senior. In a hierarchy, of course, the mythology is that those who are "above" you have all of these characteristics; authority is always "up". If two persons more senior than one's self still disagree, then go higher still. At the top of every hierarchy is a single person who is seen as especially blessed by the gods – one who, if not the incarnation of the gods, is seen as the son of the gods. At the very least, those in authority are anointed by the gods and seen as having special access to them. Thus the whole Great Chain of Being of which humans are a part is cosmically secure.

A sense of hierarchy is deep in the unconsciousness of every settled pre-Industrial and Industrial culture. In such societies virtually all persons have a lively sense of their place in society; of the fact that they must not presume to aspire to a higher station than their own; of their obligation to bow to the will of their betters; and of the reality that their place on earth reflects a greater cosmic order. "*As above, so below,*" is a widely-shared sense.

That accountability should flow upwards and binding decisions downwards, is simply a manifestation of how things really are. Even democracy does not escape the iron grip of this sensibility. True, each person may participate in determining who shall govern them. But once elected, it is clear that those who govern are in charge in ways that cannot be effectively challenged by those who are subservient.

Atomistic

The second major ontological assumption of Industrial culture is unique to Industrial culture as a dominant view. It is that reality is atomistic – it is made up of ever so small constituent pieces that, jigsaw puzzle-like, are what they are whether they are set off by themselves or combined with some other such pieces. The constituent pieces of reality are unaffected by those things that surround them or their relationship to them. Put formally, relationships are accidental, not constitutive.

The Industrial sense is that reality is additive – it is OK to focus on each piece, one at a time, because that with which we are dealing – be it a city, a company, or our lives – will add to

wholeness over time. Industrial mythology asserts that some “guiding hand” is at work to bring wholeness out of individual action. In economics it is the market; in religion, the holy spirit; and at work, your boss. In all cases, the meta-message is the same – “*don’t even think about things that are not your responsibility.*”

The tendency of those formed within Industrial cultures to focus on things and not contexts flows from this deep assumption about reality. The Industrial bias is to focus on what is before you – to get down to it; get on with it. The message is, “*Ignore context – physical, historical, psychological, cultural.*”

This means that within an Industrial culture one’s responsibility is limited to one’s individuated role and piece of the action. Not only is it not necessary for us to learn to focus holistically on the overall project, including its physical and historical setting, it is wrong to do so. “*Just do your job and all will be well.*” The phrase, oft said in the military, “*That is beyond my pay grade,*” reflects the same assumption.

Limiting one’s attention by selecting those features of the situation on which one has an interest and denying all else as irrelevant externalities is an essential characteristic of an Industrial culture. This tendency can be seen in virtually every dimension of Industrial societies – the emergence of intellectual work that is wholly separate from one’s personal qualities; of intellectual disciplines that divide reality into separate and self-contained chunks; of societal sectors with quite different interests and responsibilities; of the various bureaus in a bureaucracy that have no effective relationship one to another; and in the zoning of town planning. That Industrial culture should do pieces exceptionally well, but cannot offer solutions that *get it together* is no accident. Rather, this characteristic reflects the systemic bias that flows from the deep and unconscious assumption that reality is atomistic and therefore can and must be treated this way.

Materialistic

By a materialistic bias, I mean that an Industrial culture puts a higher ontological status on things that can be easily measured – physical things – than on those things which require a subtle sensibility to notice and explore. In Industrial societies, “*Get real,*” is not an invitation to pay more attention to the love of your life, it is a reminder that those realities that have an obvious capacity to coerce your attention – physical power, food, hierarchical status, money, weapons – are all far more important than romantic or humanistic realities.

This bias is derivative from the two ontological assumptions noted above. If the really real is at root small bits of material, then those physical things that can coerce our attention are more important than things that cannot.

So what matters in social policy is that the poor have “*access to goods and services,*” whereas their sense of dignity and self-worth do not make it onto the radar screen. So everyone is supposed to understand that a *business* decision necessarily means that the focus is on money and power, while every human consideration has been stripped out. So the normal standard of land use is “best and highest use”, meaning that use that commands the highest dollar value regardless of its impact on the community. So medicine can be practiced by those who understand body chemistry, but have no sensitivity to the human psyche. Bedside manner is nice, but known to be empirically irrelevant. So economics develops in a way that systematically discounts the future; and this is still seen as sound and rational, even though some economists have grandchildren.

There is not time or space to explore the many ways that these three ontological assumptions and the epistemic views they entail are routinely manifest in Industrial culture, but it can be done, even by persons who have never thought about these matters¹³. Many observers have pointed out that the formative images, metaphors and logic of Industrial culture are Newtonian in nature¹⁴. The point is not that Newton invented Industrial culture, but that his images capture and express the inherent understanding of Industrial culture of reality as a huge and immensely complex mechanical system.

2.2 Persons as Understood within Industrial Culture

The four primary characteristics of persons as understood within Industrial culture are that we are individual, motivated by external incentives, consumers and unconscious.

Individual

It almost seems trite to point out that within an Industrial consciousness persons are seen, thought about and treated as separate and self-contained individual entities. That the 'individual' is a primary category of perception, thought and action in Industrial culture is wholly obvious to any who know such a culture. Each person is seen to be a thing in and of our self, by ourself – an object in the world that deserves human attention.

Put another way, a person shaped by an Industrial culture, when asked to say something about him/her self, will typically talk about him/her self without any reference to other persons or things to whom he/she are related. While this horrifies those with a pre-Industrial sensibility, it is normal behaviour in an Industrial culture.

The epistemic implication is clear – knowing is understood primarily as an activity that each of us can do alone – by ourselves, for ourselves, without reference to others. If others are required in order to know, it is for practical, not ontological or epistemic reasons.

The major human ambition of an Industrial culture is to remove external constraints on the freedom of action of each of us as individuals. In the Industrial lexicon, 'freedom' means "freedom from constraints," especially easily observed constraints, be they illegitimate authority, slavery, poverty, hunger, ignorance, disease or unjustified discrimination.

Motivated by External Incentives

That individuals are seen within an Industrial culture as motivated by external objects should not be surprising. After all the appeal of the pleasure of money and sex and an aversion to the pain that can be inflicted by those with power are far more obvious and more easily measured than a sense of one's own self-worth. Put formally, an Industrial culture is Utilitarian¹⁵ in its essential approach to human beings. The focus is on controlling behaviour by means of external appeals to pleasure and the avoidance of pain. Character development does not apply to the mass of humanity. Even Adam Smith's appeal to "self-interest" is cast in these terms.

Consumer

Given the above, it follows easily that the core Industrial perception of human life should be as a production/consumption function. The point of life is to contribute to the creation of material things that can be consumed. Life is about material gain. Wealth is about money. Money is the way we keep score. In an Industrial society, education is advocated primarily as ensuring

access to a paid place in the economy. Science, too, has an instrumental value – it leads to technologies that by being commercialized lead to wealth creation.

Unconscious

While it is true that in the 18th and 19th Centuries a new concern developed with human consciousness, it was developed primarily by those who were breaking with, rather than extending, Industrial thought and culture; those who were unconsciously laying the foundation of a post-Industrial culture.¹⁶ Within an Industrial culture with its focus on external behaviour that conforms to the truth as represented by those with authority and that enables one to produce and consume, there is little reason to become conscious of one's own consciousness.

2.3 *The Ontological and Epistemological Assumptions of the Emerging Culture*

Three core ontological assumptions are now emerging with enough strength that they are beginning to be worked into the daily life of persons in Industrial societies – reality is dynamic, systemic and variously coercive.¹⁷ Taken together, these three insights into the nature of reality are eroding the classic Industrial images of reality as so given, solid, stable that it is independent of both time and human persons. While it will be some decades before these emerging images become the dominant default views, I assume we agree that one of the points of practicing FTA is help our clients and societies see and act ahead of the curve.

Dynamic

We are coming to understand that change is an inherent characteristic of reality. It is not so much that a stable reality moves, but that the ongoing processes of reality throw up obvious and relatively stable chunks of matter from time to time. But the processes of change are more fundamental than the obvious bits that Industrial culture takes as reality itself. I grant that this is confusing, because some of the processes take nanoseconds to change and some take hundreds of millions or even billions of years. To make matters worse, at least for a died-in-the-wool Industrial sensibility, new manifestations of reality emerge from time to time that cannot be predicted from past behaviours and relationships. Study of such phenomena is the focus of Complexity Theory. Reality not only moves; it is incomplete.

At the least, then, as human beings, we must always note what the time is when we are focussing on some aspect of reality. We do this because we know that at some other time, the object of our attention may be in a quite different state. This means that regardless of the ultimate status of time, human experience of reality is time-bound. For humans, it is not just that *we live in history*, but that we are so thoroughly immersed in time that the quality of our experience, and therefore, our knowing, is itself historical. Change the time and to some degree our experience changes.

The implication for human knowing is that *knowledge can no longer be marked by certainty*. In a dynamic world, all human experience, judgement and knowing must necessarily be incomplete. The only honest answer to the challenge, “*But are you certain...*”, is “*Of course not, but that does not mean that my views should be discounted and discarded.*” On the other hand, the logical possibility of taking as known, something that is actually false, must always be recognized. In the emerging epistemology, “false knowledge” is not an incoherent term, but an ever-present threat.

The shift from a static to a dynamic view of reality can be characterized as a shift from the primacy of *nouns* to the primacy of *verbs*. This is also true epistemologically – the shift is from knowledge as a well-formed and unchanging artefact that can be exchanged and transferred to the human activity of knowing. Given an inherently uncertain reality, the question becomes the degree to which our knowing is reliable. The goal of knowing is no longer to develop the perfection of a single ideal and timeless point of view, but to increase the degrees of reliability of our knowing, when compared to that with which we started. We now know we are on a journey without arrival.

However, all is not lost. In the 20th Century, we learned a good deal about the conditions that increase the reliability of our knowing. Knowing becomes more reliable when multiple perspectives are taken into account. For example, those of other persons, genders, cultures, times, economic levels, belief systems, personality types, learning styles, disciplines and sectors. Objectivity no longer means a fixed and guaranteed point of view. Now objectivity means what it has come to mean in the philosophy of science – inter-subjective agreement among those who are judged to be the best observers. Of course, the choice of the *best* is also subject to being more or less reliable.

While there are no guarantees, there is no reason why the reality of relativity should lead us into the dark night of relativism, in which no judgement is better than any other. Of course, some judgements are better than others, but none are exempt from challenge or scrutiny. The implication is clear – the ontological rug has been yanked out from under all a-priori claims to hierarchical authority. Now, hierarchies, to the extent they are used at all, must be voluntarily agreed to.

The relative reliability of our judgements can also be improved by learning to pay greater attention. This may mean that we must develop a more discriminating eye, hand or ear. In short, knowing, for human persons is inherently personal – the quality of our knowing is a direct function of the quality of our lives and relationships. Those with greater integrity will know more reliably than those with less. Those with a higher capacity for candour without destroying relationships will also be better positioned than those who cannot bear to hear hard truths. Those with a developed capacity to re-frame their experience will also develop more reliable knowledge than those who take their inherited frames as normative.

It follows that those who have developed a reflexive stance, both as persons and as communities, will be able to know far more reliably than those who are unaware of the countless ways their own historic characteristics influence both what they know and the degree of reliability with which they know it.

Systemic

In the emerging view, reality is no longer adequately described as being made up of endless combinations of unchanging things. Rather, it is best seen, thought of and acted towards as an endless set of systems and sub-systems. The message is, *see and think ecologies, not stand-alone parts; see and think relationships, contexts and holons, not things in themselves*. This new stance is required because, while a thing – be it a protein, person or prairie – may appear to be complete in and by itself, in reality, it cannot be understood apart from its contexts – in space and time.

Another implication is that we must recognize that we cannot determine beforehand what is important to a given decision and what is not. In a relational reality, at least in principle, there

can be no externalities. Any decision to consider less than everything, must be acknowledged as a human decision for which we must take responsibility.

Variously Coercive

By the phrase, *variously coercive*, I point to the fact that much that is real does not and cannot coerce our attention. That is, if we do not learn to look for such dimensions of reality and attend to them with great care and sensitivity, they simply do not exist for us. The understandable mistake of Industrial consciousness and culture is to limit what is experienced as real to those dimensions that can coerce human attention. In terms of the diagram on the next page, Industrial culture limits reality to the darkly shaded space, whereas we are coming to recognize that reality actually covers the whole space

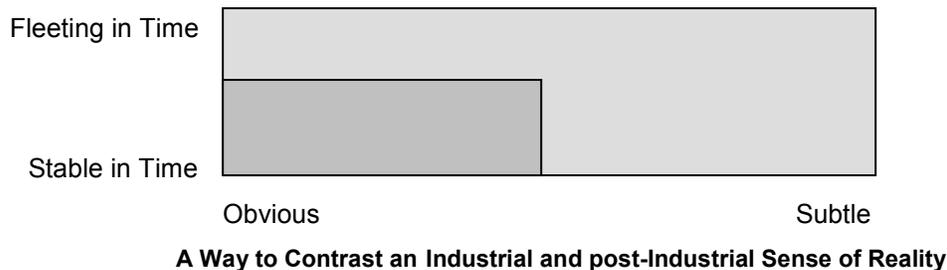


Figure I

2.4 The Emerging post-Industrial Understanding of Persons

A quite different understanding of human beings as persons is implied by the emerging root assumptions of a new civilization. The three features we will consider are the sense that becoming a person is a formative project, that persons are inherently relational and that, for good and ill, we are co-creators of our lives and cultures.

A Formative Project

By 'a formative project,' I point to two dimensions in which, human beings are shaped by time. First, the long evolution of *homo sapiens* is recognized and embraced. As a species, we too, are what we are *at a given period of time*. The claim that "*human nature does not change*" is rejected as false. It is increasingly clear that we are an evolutionary project; that we were significantly, but not wholly different 200,000 years ago when, we now know, we were all in Africa and all black. The thought that humans may become significantly different in the future must also be entertained.

The second sense of this assertion applies to each human being. It seems that we are born as human animals who are potentially human persons; that the process of becoming a person fit to live with is a developmental project. At the extreme, there have been enough cases of human babies that have been raised in the wild by animals with no contact with other human beings to confirm this view. More generally, cognitive and developmental psychologists in the 20th Century have made large contributions to exploring and mapping the possible patterns of our development as persons.

One implication of this view is that 'human dignity' applies to all of us as human animals, whereas, it is also quite appropriate to ask how any given human being is doing with the project

of becoming a person. A further implication is that human cultures are now recognized as the crucial setting within which our development as persons takes place. This brings us to the second feature.

Relational

The core assertion is that *“human beings are inherently relational.”* It points to a multi-faceted reality of our lives that under-girds our development as persons, even as individuals. At root we are not separate individuals, but, in John Macmurray’s phrase *“persons in relation.”* (Macmurray, 1961).

Consider that even at a *merely physical* level, the role of touching and being touched by others is now understood to be central to our survival as newborns and to our continuing well-being. Touching, of course, is seldom just a physical experience. It turns out that a human touch is a condition of wellbeing and not merely a sweet, but ungrounded, romantic notion. The evidence is growing that bedside manner correlates with healing rates, as healing rates also do with visual access to the natural landscape. The recognition of these facts is slowly seeping into the training of physicians and the physical design of health care facilities. Annual conferences on “Spirituality and Healing” are held at several medical faculties around the world.

As the reality of our relatedness to each other and the physical world is combined with that of our lives as developmental projects, it is not hard to predict that wholesale changes will occur in such diverse fields as urban planning, land use planning, community development, architecture, education and mental health care. That most of the habits and practices in every field in modern Industrial societies reflect yesterday’s assumptions and not tomorrow’s, is not surprising. Nor is it acceptable. It is literally life-threatening to continue to act as if Industrial consciousness and culture are normative for our future.

Co-Creators

The core assertion is that *“social realities are, and always have been, socially constructed.”* This means that the myths, formative metaphors, aspirations, structures and limits of any culture are human artefacts – something we, as human beings, have created together, even if unconsciously. Granted, a culture is not like a table or a canoe – it does not result from a simple decision to make one, by one or two persons at a given time. However, whole cultures, as with our lives, are constructed by the particular things that are or are not said and done, by particular people, at particular times, over very long periods of time.

As of today, no culture embraces or reflects this insight. Rather, every culture continues to tradition its young into some version of this story, *“The way we live is right and good. It reflects the will of the gods and the nature of reality. Find your life within this frame, but do not challenge, betray or fundamentally change what you have inherited.”* In other words, no culture raises its young to be conscious participants in the ongoing co-creation of its culture; to accept responsibility for the continuing evolution of its culture.

Learning to embrace this work is the core challenge for every culture in the 21st Century.¹⁸ The evidence is growing that as a species we will either learn to do so or we will degrade the conditions necessary for a reasonably prosperous and graceful human life to the point of our extinction.

One implication of this emerging view must be noted: a reflexive stance is now a requirement for living well as persons, families, communities, organizations and whole jurisdictions.

3. The Implications for Our Practice of FTA

Given the nature of the shift in human understanding that is occurring around and within us, the fact that it is not yet well-recognized, and the length of time it will take for its implications to sink into our culture, the following should be taken as a probe – as a partial sketch of the terrain into which we are moving. It is way too early for definitive statements. Nevertheless, I am convinced that we in the FTA community must be far braver than we have been to date in exploring the emerging landscape and thinking through its implications for us and our practice. What follows appear to me to be the major requirements for good FTA practice in the 21st Century. I am not suggesting that they can be met by just deciding to meet them. To the contrary, meeting these requirements will take time and focussed effort. I also hasten to add that I see evidence that these characteristics are already emerging in our field. My self-assigned task is to clarify and encourage the work we have to do. I do not suggest that mine are the only eyes that see the need for it.

1. Reflexive: The primary requirement of the emerging view of reality and knowing is that as persons and communities of practice we must be reflexive practitioners – self-aware and self-critical at any and every level of our existence. At the least, this means that we and our students must come to take for granted that we will develop a deep and broad degree of self-knowledge – as persons and communities. We must routinely be able to factor into our work the many subtle ways our knowing is influenced by our gender, education, social and economic backgrounds, learning styles, personality type, clients, ethnic background, spiritual tradition, mother tongue and... (the list is virtually endless). Whereas the first Enlightenment championed the development of a critical-mindedness, the second requires that we turn this capacity directly on ourselves. This is the reflexive turn.
2. Consciousness: A second requirement is that we recognize and openly discuss the fact that good foresight work is necessarily consciousness work. Not by accident, it messes with our minds at deeply personal levels – more deeply than most persons will experience if they are not in therapy. We are not exempt from this requirement by the fact that FTA is focussed on science and technology. Rather we must acknowledge that technology both reflects and carries consciousness; that it is never “just a tool, devoid of consciousness and culture.” Only by expanding our practice to include a greater sensitivity to consciousness and culture can we become truly helpful in the face of the impending disasters and opportunities for humanity that the 21st Century will offer.
3. Long-Term Cultural Change, Evolution and Transformation: The scope of our practice, *as an FTA community*, must expand to include focussed research on long-term cultural change, evolution and transformation. We can no longer leave this work to others or allow our clients to think that they can ignore it because it touches them not. If ours is such a rare time of cultural evolution, then both we and our clients deserve to know that this is the case, why, why now, what factors are driving this change and what implications it holds for our and their future. If ours is not such a time, then those who offer this view must be engaged and shown to be wrong. We in the FTA community can no longer leave this work to others in the broader community of futures researchers. Among other things, our humanity cannot be understood apart from both our capacities to inquire and to create and use an ever-wider range of technologies.

Lest you think that this concern is well established among us, I must confess that can find no evidence that this is the case. A slightly-more-than-preliminary search by Foresight

Canada of environmental scans and lists of the top strategic issues for the 21st Century by established organizations – both government and corporate – revealed that the *cultural framing issue* is not even on our radar, let alone on our agenda. We found no examples of awareness of this issue by well established bodies.

4. Generative: Our deepest motivation must be to see, understand and respond with great courage and creativity to the most profound possibilities for both good and ill that are offered by this moment of history. Compared to ensuring the conditions that allow for a humane and reasonably prosperous future for humankind, all else pales. This means that we must learn to relate to our clients in ways that encourage them to become aware of, challenge and transcend their own unconsciously-held cultural assumptions. When no existing set of cultural assumptions is adequate for the future, to allow those with whom we work to live by the illusion that Industrial culture has a long-term future is no gift. To do what they ask, merely because *they are the clients and the clients know what they want*, is a betrayal of our responsibilities as FTA professionals, as well as fellow human beings.
5. Open Source: Given the nature of knowing and this moment in history, we in the FTA community must develop the networks and protocols that allow us to develop our work in an open source manner. I find it unconscionable that yesterday's understandings of intellectual property still grips our imagination and so much of our practice; that so much of the very best work in our field is withheld from most who might benefit from it merely because they cannot pay for it. Surely, we can figure out an open source way to share our work – a way that will also enhance its value because millions of minds can work on it.
6. Wisdom: Being knowledgeable about FTA as this has been understood is no longer enough. Now, we must aspire to becoming wise. Wisdom will be required if as a species the vast majority of human beings are to survive the 21st Century with a reasonable degree of prosperity, grace and humanity. Again, this work calls us to develop our capacities and consciousness in ways that are deeper, wider, and more inclusive and integrated. Well established boundaries that now limit our work – be they client interests, disciplines, Industrial mythology or other – must be identified and transcended.
7. Knowing: The deeply personal nature of human knowing must be acknowledged and owned up to. We can no longer pretend that there is no correlation between the quality of our work and that of our character as persons. Ours is not impersonal and arms-length work, just because our focus is on science and technology. Rather, as Wilfred Cantwell Smith suggested to me in a letter, this kind of work ultimately requires that "*one is willing to become a different sort of person.*"
8. Community: Given that knowing reliably is a function of the quality of the communities within which one comes to know, we must pay far more attention to nurturing inclusive, robust and self-conscious FTA communities of practice, both in our own countries and world-wide. In our organizations, regions and world-wide, our dialogue must be more intense and sustained. The residual Industrial illusion *that each of us can do this alone, because knowing is ultimately individual*, must be identified and overcome. Also included in the challenge of community is the requirement that, increasingly, our work crosses the boundaries set by present disciplines, sectors and interests.
9. Knowledge Utilization: The emerging understanding of reality and what is involved in knowing it reliably requires that we re-think our understanding of what is involved in

sharing our knowing and technologies with others. I find the images and practices of “technology transfer” to be inadequate. Understandably, they reflect our roots. But they do not capture the realities we are coming to see we are actually up against.

I find the idea of learning to utilize information as a human process more to the point. In my view, the shift from data to information to knowledge to wisdom is marked by two kinds of transformation. One is the familiar idea that each step on the scale is marked by a more integrated and tightly woven understanding than the step before it. The transformation I have come to add to this is that the data and information are human artefacts in the world. As such, data and information can be exchanged, traded, given away or sold as is another artefact. The fact that the “seller” still possesses the artefact does not take away from the point. On the other hand, knowledge and wisdom are processes internal to a person and community. When information is transformed into knowledge it is, so to speak, digested into one’s knowing system. For example, for me this paper reflects what I think I know – from the inside. But for you, it can only be received externally as information. Whether or not you digest any of this paper into your own knowing system is up to you. One point is that learning to utilize information is a human process for both persons and communities. It is not the kind of process implied in the Industrial language of technology transfer¹⁹. A second point is that to learn to digest and utilize a higher quality of information than that now being utilized is almost always disruptive, not only to our mental models, but to our self-understanding and to our established organizational processes. Nevertheless, we must learn to share and utilize even higher qualities of information – as if our lives depend on it. The do.

In summary, it is my view that both the work of FTA and the world will be well-served, if we as a community of practice face and face up to the fact and implications of the long transition to a post-Industrial culture within which so many peoples now find themselves. Given that the path I am encouraging us to embrace was created and pioneered by brave and insightful scientists formed in the Industrial tradition, it would be ironic as well as tragic for us to turn our backs on this meta-project. It is nothing less than the core human challenge of the 21st Century.

I look forward to working with you and unnamed others on this project. Allow me to close with the words of John Macmurray (1949). They sound an appropriate note – one that is at once marked by caution and hope. *“To be rid of our illusions, if it does not break our courage, is a liberating experience.”*

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Footnotes

¹ Goodman and Moffat (2002, Preface)

² I owe this insightful phrase to Riel Miller. He used it in his presentation on "Learning Societies" to the 6th European Conference on Regional Foresight, Turku, Finland, June 8th, 2006.

³ A 'categorized program' is a program that focuses on a single category of need, e.g. unwed mothers, orphans, the blind, the deaf, juvenile delinquents, etc. The net effect is that a deaf, orphaned, unwed mother falls under three, often incompatible funding programs, administered by three or more organizations, each focused on only a part of the person. Such social policy results in many agencies that want a piece of those in need; whereas no agency cares about or ministers to the whole person. All social legislation passed in European nations from the 18th to late 20th Centuries was passed one category at a time. In fact, it is still the basis of most social policy, world-wide, today.

⁴ While Thomas Kuhn had published his Harvard thesis on paradigm change in science (Kuhn, 1961) and symposia were being held in the academy to debate it (e.g. Lakatos, 1965 & 1970), the idea of *paradigm change* did not emerge as an idea in good currency until later in the 1970s and into the 1980s and '90s. As data points of this evolution, consider the following: The first Canadian paper on paradigm change in 1971 (Nelson 1971). The first application of the concept to paradigm change to whole cultures was in the mid-'70s. (Nelson 1975). The world's first general conference on paradigm change was not organized until 1982 – by the International Association for Transpersonal Psychology outside Boston. The first book applying paradigm change to business was not published until 1993 (Ray and Rinzler, 1993). Today, a Google search on the phrase 'paradigm change' results in 183,000 hits.

⁵ Daniel Bell's tome was not published until 1973.

⁶ Lest we appear to be picking on political leaders, this same judgment can be safely extended to virtually all opinion leaders in all sectors of all societies. We do not yet live in a world in which conscious critique –

in the sense of critical appreciation – of one's inherited consciousness and culture is seen to be an essential capacity, even for our most important leaders.

⁷ This view has long been held by serious historians of religion – the field that has developed the deepest knowledge of cultural frames of reference and what is involved in changing them. For example, see Chapters 3-5 of Smith 1981. Chapters 4 & 5 are devoted to self-consciousness as a mode of humane knowledge. It is also a major conclusion of our own study for The National Research Council of Canada (Nelson & Harries 2005).

⁸ The 9/11 Commission Report, 2004, p.399

⁹ This section draws on a lifetime of work, including three occasions when I have been asked to identify the underlying assumptions of Canada's modern Industrial culture and make the argument that this inherited understanding will no longer serve us well as we move into the 21st Century. Of course, I am indebted to many others, too numerous to mention. However, I must refer to the only books with which I am familiar that set out to lay bare and explore the nature and limits of modern Industrial consciousness. See John Macmurray 1957, John Macmurray 1961 and Berger, Berger and Kellner 1973.

¹⁰ The idea of 'inevitable surprises' has long been a staple of serious futures researchers. It was popularized by Peter Schwartz in his book with this title. (Schwartz 2003).

¹¹ Historians of religion who understood this characteristic of pre-Industrial cultures were the only ones who, in the 1970s, accurately foresaw the actual character of the Iranian revolution – it would not be of the Left as widely anticipated by the CIA, military intelligence and popular wisdom. Rather, it would be an attempt to find and hang on to the essential realities around which any good life necessarily revolves.

¹² I invite you to recall your experience when I first used the concept of 'false knowledge.' The experience of cognitive dissonance is quite common. It may indicate an unconscious grip, even today, of the long-held assumption that any knowledge must necessarily be true.

¹³ I know this to be the case, because for over twenty-five years I have watched them do so when playing a reality simulation game I invented in the early 1970s.

¹⁴ See, for example, Mumford 1964.

¹⁵ See, for example, John Stuart Mill 1863.

¹⁶ See, for example, Immanuel Kant 1787, Karl Marx 1867-95, Henri Bergson 1907

¹⁷ In this section, I have drawn on the work and insights of many people, among them my colleague David Peat, both in personal conversation and in his many writings. See for example Peat 2002. I also owe a particular debt to Berger and Luckmann 1966.

¹⁸ This is the view of the Creating Tomorrow Foundation, a Calgary-based group dedicated to ensuring the future of humanity by calling and encouraging all who are willing to openly embrace the project of learning to become a conscious and responsible participant in the co-creation of a culture that is deeply and truly aligned with the emerging character and requirements of the 21st Century. See www.creatingtomorrow.ca

¹⁹ It can be argued that insensitivity to the deeply human and cultural character of learning to utilize information and technologies of a culture that is not one's own, is at the heart of the long string of disasters in the field of international developmental. People in pre-Industrial cultures were essentially promised that they could learn to have all of the advantages of Western science and technology without having to take on any of the cultural characteristics of Western Industrial culture. Unfortunately, such a promise cannot be kept because it is not empirically possible to do so. Technologies necessarily carry consciousness and, as every mother knows, consciousness leaks.