Big History and social work

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**Introduction**

This paper is about social work. It uses social work as an example of systems evolving culturally and Big History as the continuity within which such systems evolve and have been evolving for all of time as we know it. The early evolution of the universe is a process of physical evolution wherein the steps from the simple to the more complex are a bit more understandable than the steps from a bacteria to the child that you and your partner agree to produce together but they are the same steps in that they are based on the same natural science. We humans are at the leading edge of a process that evolves from the simple to the more complex with each step enabling “next” steps to emerge dependent on their capacity to use energy flows through the system in an optimal manner. The measure is a temperature gradient in the form of energy flows that allows the increased complexity to either thrive and provide a platform for additional steps or to fail and wither by the wayside. There is a tendency for us to see this as happening for the benefit of our species although most scholars assure us that evolution has no particular objective and it is only happenstance that we reside where we do in the continuum. I tend to agree with this observation. On the other hand, our brains and our culture give us the capacity to observe that behaviors have consequences and that those consequences create outcomes that may or may not enhance the sustainability of life on planet earth. It has taken a long time for radiation and then hydrogen to evolve into the galaxies that allowed stars to be born and die in order to create the heavy elements needed to make our bones and the plants we eat. Darwinian evolution, with the help of archeology and anthropology, reinforce the observation that living things evolve according to the same patterns of process that enabled the evolution of the physical world, only not so slowly. The trend is from the simple to the more complex. We don’t fully know why some simple life forms last “forever” without change and why others change dramatically and rapidly but we do know that humans fit the latter category. We can trace cultural evolution back to stone/fiber tools which we share with some other species and to controlled use of fire which we seem to be unique in using. We continue to argue about the role of symbolic language in terms of timing but no one argues its significance. My guess is earlier than later since it is hard to imagine sending your child out to get a stick without differentiating between a dry piece of pine and green oak. (our arrogance gets in the way of appreciating the use of language by and between other species but hopefully we will accept that at some point; and expand our study there) Clearly, the human brain and human culture, with Mother Nature, are at the leading edge of cultural evolution and we know the pace is increasing at what appears to be an out of control rate. Eric Chaisson refers to the continuum as cosmic evolution and ontogenic evolution seeks to incorporate learned behaviors into the mix. (Chaison 05) Our human collective learning has got to be the primary driver of the process at this point and we have no idea how our tinkering will be tolerated by the natural science which all this complexification rests on. Humans not only have the capacity to observe and learn from our behaviors, we have the capacity to change those behaviors to produce different outcomes. This, and this alone, gives us a special partnership with Mother Nature going forward. Social Work practice is a major vehicle through which micro and macro behaviors can be linked to specific outcomes and thereby changed.

**Social Work meets Big History**

Big History is a discipline that proceeds forward along the line of time just as it recedes backwards to the big bang which we use as our start point. The difference is that we know looking back with the aid of all that has been learned collectively by the generations that have come before us. The other difference is that the end point is personal going forward. We each end the story differently and at different points along the continuum of time. That’s why the idea of collective learning which David Christian brings to us in “Maps of Time” is so important (Christian 02). It establishes our individuality with our collectivity. Humans are able to know something about the history which is yet to come. We can know that our behaviors are likely to result in certain consequences. As far as we know, no other species can look ahead and know something about history that hasn’t happened yet. For example, Einstein looked ahead and knew that gravitational waves occur as large masses rumble along with the expansion of the universe. He knew the universe as a single entity, all connected from one end to the other. We don’t know with what degree of certainty we can see future history but one of the things social work helps people with is to understand that their behaviors will have consequences. If you overeat and don’t exercise you’ll get fat. Simple but extraordinary how many folks don’t connect their behaviors with what happens to them. They are truly surprised when a judge removes their legal right to parent their children.

Social work is a new profession. It has emerged as families, churches and communities were no longer able to adequately respond to the common and individual needs of people (Towle 14). The founders of social work were able to look forward and see the special role of humans in the continuum of life (Federico 09). They also observed that we need to pay attention because what we have in common with everything that has come before is that it is all evolving from the simple to the more complex. Consideration for the needs of others, for example, had traditionally been limited to people related by family or ethnic group and then often only grudgingly unless they were afflicted by some “reasonable” limitation. People were expected to endure and manage even the worst deprivation or disability with a stiff upper lip and a hand on their boot strap. Denial and resentment met those who did not. This is probably what made humans as rugged as we were when we confronted things like the Irish potato famine half way through the nineteenth century. Slowly, looking forward we began to understand that humankind is a single entity too. We all sail in a single boat and the waves that one of us make chill the bones of the others while the calm that individuals can bring acts as a sheet anchor. I’m going to guess that the founders of social work only knew with a limited degree of certainty that we need to value each other in order to actualize the potential of humankind but intuitively they believed with a great degree of certainty in that potential. In fact, I like to look at the actualization of human potential as the primary functionality of the social work profession.

When we look back in the archeological record, at least when I do, I see a kind and gentle species until about 14,000 years ago when we see the first group killing. Then again about 10,000 years ago we see it again. When we look in the anthropological record we see religions emerge about 7,000 years ago and take all sorts of shapes and forms until the notion of dominance erodes what must have initially been a mutuality of purpose. It is another 6,835 years before social work attempts to grab hold of a species raging out of control and inject the calm needed to get a grip. This progression mirrors the pace of enhanced complexity that Eric Chaisson illustrates in “The Natural Science Underlying Big History”. That pace has come to exceed the development of the complexity in both the human brain and human culture (Chaisson 06). We have no idea where this pace is taking us. But humankind and social work are at the leading edge of a process that must have occurred elsewhere in the galaxy, maybe millions of times. How did these other civilizations manage the realization that their sustainability depends on their behaviors? Kind of scary but also a bit exciting. How much time do we have to do the things that probably need to be done to maintain our comfy little berth here on planet earth? I think it is important to here say that Big History should have no quarrel with the notion of God. Any more than we should have a quarrel with the notion of family. Will Callender, who is a theist, and urges us to think more about God, asks that He step down in order to free us from the dogma of religion as we struggle to cope with the issues of humanity (Callender 03). God cannot be expected to guide cultural evolution. Nor can dominant white males.

The world of literature probably better describes the world that social work emerged into than did the world of history. We know very little with certainty about the world inhabited by our forebears prior to the onset of the last glacial maximum. Practically nothing about their social behaviors is known with certainty other than what a few scholars, like Clive Gamble painstakingly share (Gamble 10, 11). More than not, I am puzzled by what seems to be a lack of interest in where human behaviors come from. Why isn’t there more interest in what the cave art of our ancestors tells us about our social behaviors? Is that not our first “written” language? Most scholars tend to share with certainty looking back with today’s eyes at what they assume was fact for thousands of generations of hunter/gathering. Where and how human social behaviors evolved from is, in my opinion, one of two major research areas that Big History can productively invest in.

Literature, even historical novels chuck full of fancy, give us some sense of what has passed as social behaviors for the last several thousand years but it is only since the beginning of the twentieth century that we begin to see what early social workers saw as they opened their eyes to the conditions that many people live in. Too many people were without descent jobs and the centralization of wealth was destined to continue as the dominant economic force it has always been. It was the mid twentieth century before social work stepped up to manage the programs that emerged out of the depression, compliments of WWII, and materialized through the New Deal. All, complex systems that evolved culturally; and we have no idea to what extent the energies that flow through them are optimal. Or even how to define optimal in such systems. Social workers took these new management jobs naively assuming society wished us to facilitate the sharing of community resources so that everyone would have the opportunity to actualize the potential social work said we all have. Soon, very soon, we were overwhelmed by the volume of need. The first ADC case was opened in 1935 and by 1996 the spending on the program was 24 billion dollars per year. There were 12,649,000 recipients receiving AFDC assistance in the US just prior to the Clinton welfare reform at the end of the millennia (15). Social work had no sanction from the power base accumulating the wealth as it was centralizing, to share some of the resources with poor women and children. The programs emerged by default rather than by design and social work grew with them. So, for all intents and purposes, social work emerged because the market place did not provide access to resources for large groups of people to meet their basic human needs and society was not comfortable with the visibility of their deprivation. Jobs continued as the primary mechanism through which most people “earned” their daily bread but additional “social” programs emerged to fill the income gaps for special groups like the unemployed and the disabled. I find it fascinating that during this period of transition from just jobs to jobs and social programs it was primarily women, children and the disabled, soon to be redefined as the functionally challenged, who were relegated to the status of welfare recipient. We could have expanded the definition of work to include child care and pay women who wished to raise their children without a husband for doing that rather fundamental portion of the work. Instead, we defined that portion of what needed to be done as welfare and paid them a pittance for doing what turns out to be the only really important thing we do on this planet; raise up the next generation. I knew thousands of these fine young women who stuck to their guns and raised their kids on what was then AFDC in spite of the barriers put in their way by mostly well intentioned white males in charge of developing the program policies. In my opinion, they made “rosie the riveter” look like she was crocheting.

For a while that was a more or less adequate mechanism of subsistence and most people were satisfied with the compensation available through jobs and government programs. More importantly, the jobs provided a sense of accomplishment which workers could feel good about. Our culture remains in that transition from a jobs based subsistence mechanism to a combination of jobs and government subsistence programs. Humans don’t do well with major social transitions and this one is particularly challenging since we continue to behave as if the market place was still a workable option for the majority of the people. It could be argued that the market place provides a mechanism for storing large groups of workers at the lowest possible cost to the managers of the economy. Although workers made some gains early in the twentieth century in terms of compensation and benefits, the centralization of wealth continues and the deprivation there from will require governmental supplemented programs going forward. Social workers will continue to manage these programs and will be powerless to articulate the more honorable function of the actualization of human potential. Lest I give the wrong impression that social work is primarily a profession that deals with the poor and their deprivation, I will speak to two other functional areas that the profession has taken on.

During the 60’s and 70’s, it became clear that lots of people could benefit from help managing a wide range of social and personal issues. Psychiatrists and psychologists were filling most of the void but an increasing demand created a niche for some of the many social workers entering the market from graduate schools. As this niche expanded the profession expanded with it into a somewhat higher status function somewhere between what psychiatrists had been doing and the counseling social work had evolved into. In addition, social workers took on many functions that other professions were happy to let go of. Discharge planning from medical facilities and parent/teacher relations in the schools are two examples. The number of activities people were doing that could be called social work increased dramatically. Most of the students in my class at the University of Conn School of Social Work in the mid 60’s were aspiring to something that had become described as “private practice”. There were only a handful of us that graduated that year that went back into managing the public programs that most of us had come from. Private practice has subsequently grown into a fine discipline that I like to think succeeds because it is built on the value base of self determination as are all the other functional areas of social work although this is not always obvious to the casual observer.

The other major area that social work absorbed responsibility for is child welfare. This generally includes child protective services, foster care and adoption. Again social work absorbed these responsibilities more by default than by design. Families, and to a lesser extent communities, had always been responsible for the nurture of the children and by and large, this nurture, was driven by love. As families became more complex, the role of parenting became more complex as well. This happened rapidly, consistent with the increased pace of cultural evolution in all other social systems. For example, my father would have been expected to take me to the woodshed for a licking if I was disrespectful of my mother while my sons would be incarcerated if they took a belt to their kids. A hugely different expectation in a single generation. There are now 400,000 children waiting in foster care for the permanency most social workers would agree should be the goal for them. And somewhere in the neighborhood of five to seven children die each day in the USA at the hands of caretakers who are known to be abusive to them. (08) The point is that child welfare, like most other complex cultural systems, is growing rapidly and the social workers managing those systems have no idea whether the energy flows through such systems are near or approaching optimal.

Child welfare is a complex phenomenon. This paper is not intended to be comprehensive but the well-being of children is one of the major areas that social work, with many other professions, has evolved into. To be sure, the issue of adequate jobs with benefits is related to the issue of adequate parenting as is the function of counseling so the various functions of social work are related and to some degree integrated but my experience has been a bit of a hodgepodge of fragmented chunks. Some of this fragmentation grew from the dilemma of the client definition. The child welfare community defined the child as the client yet it was most often the behaviors of the caretakers or community sub-systems that needed to change in order to change the outcomes in the hoped for direction. Much of child welfare structure was carrying out an advocacy function rather than a social work intervention function. That is probably why the child welfare workload continues at a steady increase in spite of the vast number of prospective parents wanting to parent children. Some of the fragmentation, on the other hand, probably is a function of the huge range of activities social work took on during this period. These were as varied as advising a judge regarding the removal of parental rights while others were as seemingly trivial as how to get along with a crotchety aunt. The area I find most intriguing and most worrisome is that of violence. As I said above, the archeological and anthropological records seem to present our species as one of the more gentle ones. To be sure hunting can be violent and may precede the last glaciation although my guess (and these are all guesses when looking back at social behaviors more than 25,000 years ago) is that our introduction to meat came through scavenging and we have no idea how long that transition took to become hunting. It seems to me that all violence is related to all other violence so the violence in child welfare is related to random violence which seems to be on the incline and the broader violence of war which appears to have become more subtle. On the other hand, society has no way of dealing with violence comprehensively. We carve it up into bits and pieces some of which are accepted while other pieces are fiercely punished. Steven Pinker assures us that violence has declined although it seems to me to have changed form rather than decline as it continues to be a major human behavior that is used with the best intentions and the worst (Pinker 12). Most of the parents I talked with who used violence as part of their child management, had a similar response. “He or she didn’t/wouldn’t listen”, deteriorates into physical punishment and sometimes the death of the child. This outcome often seemed to include a love of the child which made it particularly difficult for me to understand. The reality is that social work deals with a wide range of social behaviors and violence is one of the more perplexing. Clearly, the role of violence in the culture is changing and like so many other trends we have no idea where it is taking us. Modern technology makes it more difficult to place the violence of war solely on the shoulders of the warriors. In addition, now, social work is taking on the abuse of the elderly, again by default, which is on the rise and holds the potential for greater incidence than the abuse of children. It is almost as if social work grows in volume to fill the gaps that emerge as society gets more complex.

**Social Work Practice**

The practice of social work rests on the same values whatever the behaviors it seeks to address. I suspect some social work colleagues would argue this assertion, and I look forward to that discussion, but without self-determination and non-jugmentalism social work simply doesn’t work.

Social Work emerges as the pace of cultural evolution runs ahead of the capacity of church, family and community to help people provide for their common and individual needs (Towle 14). In other words, as society became more complex a niche opened for social work. It reflects the increase in complexity that is the essence of Big History. Social work is designed around three distinct methodologies; casework, group work and community organization. All three rest on a value base of self-determination and non-judge mentalism. This makes social work different from other cultural systems like education or law enforcement in that it does not have a socialization function. It is not the job of the social worker to help the client adjust to the expectations of society although those who hold power might like for that to be the case. It is the job of the social worker to help the client understand that his or her behaviors have consequences with outcomes and that they, and only they, can change those outcomes. This value base causes all sorts of conflict and confusion but it is central to what makes social work different from other helping professions. It is also what makes social work functional. In the case of “child abuse”, for example, it is not the social worker who can change the outcome. The social worker has to start where the client is and help clarify the consequences of the behaviors. It is, however, only when the client wants a different outcome and believes change is possible, that that change can occur.

In the case of the community organization methodology of social work, the mandate is less clear. Who is the client and what does the client want to change is more varied than in casework and consequently less functional. If there was a way, to make an assignment to the social work profession to eradicate poverty, that would not be difficult to do in an economy as wealthy as ours. Instead, we have many social workers working in programs, under the guise of eradicating poverty, that in actuality maintain millions of people in poverty. We know this is not good for them or for the larger society. The point is that our culture does not have a mechanism to speak for humankind as a whole. If indeed community organization is a social work method and we wanted to assign the eradication of poverty to it or the sustainability of intelligent life, we would need to identify a client group who would agree on the problem definition and support the problem resolution. We have no effective way of defining how to solve poverty as a social problem or sustain intelligent life on planet earth or even any structures to make such assignments to. We know that being defined as a welfare recipient undermines self-esteem and that the centralization of wealth undermines the functionality of society but we have no way to define humankind in the USA as a client and assign those problems to the profession of social work, or anywhere else, to resolve. We do have a macro structure in social work for dealing with macro problems and enhancing well being but it does not include the components that could make it work in practice. So, social work bumbles along doing remarkable things with individuals while relatively helpless to deal with the root cause of the broader problems. For example, we could not imagine a worse way to do welfare in the USA. AFDC and now TANF undermine the self-esteem of the recipients which undermines their capacity to do the things they need to do to be good parents and contributing citizens. In spite of the debilitating nature of being defined as a welfare recipient, the average client moves on from welfare in less than two years so social workers, or rather their clients, achieve positive results in spite of the systemic barriers but this is not social work. This is not consistent with the broader social work function of actualizing human potential. One would think humankind would need to have or want some measures of what increases or decreases optimal energy flows in such systems. If social work and humankind ever hope to guide sustainability going forward, it would seem that incorporating the natural science base of Big History into the mix, would be a step in the right direction. If it was ever intended for the community organization method of social work to help society cope with systemic issues like poverty, child abuse, or sustainability; the systems have to be redesigned with greater functionality and clarity of purpose in mind. We now have no way to define what outcomes we would like such systems to achieve, we have no way to effectively define the client that can self-determine a different outcome and we have no structure within the profession to receive the assignment if it were made. More importantly, we have no mechanism to clarify the problem and its likely consequences both for the recipients of the programs and the rest of us. The natural science underlying big history suggests ways we can begin thinking more functionally about social programs and what we would hope them to achieve. It could be argued that both social work and big history have a responsibility or at least an opportunity to use the science we now have to better articulate what is likely to enable the sustainability of intelligent life going forward and what is likely to enhance our demise. Social work practice requires the client to be clear about the problem and own it in the sense that they accept that it is their behaviors causing the outcomes. This is very workable when it comes to the casework methodology. In relation to the community organization methodology where many professionals work at maintaining many millions of individuals in poverty or unsustainable behaviors, I like to think we are still in the problem definition stage and need to ask more questions. This is the case with child welfare as well. Why do we have 400,000 children in foster care?

**A word about the science underlying big history & social work.**

The natural science that is the foundation for physical evolution is the same science underlying big history, social work and cultural evolution. Aside from the math involved, it is quite simple. Dr Chaison has done the work which complexification rests on over time. He uses energy rate density flows as the metric as opposed to either entropy or information. His work is fundamental to how complexity grows in nature and is especially relevant to the pace at which that growth takes place. The following graph makes the point over the full course of time.



Figure 1. Energy rate density, Φm, for a wide spectrum of complex systems observed throughout Nature, displays a clear increase during ~14 billion years of cosmic history. The Φm values and their historical dates plotted here are estimates (blue), all taken from and discussed in a contemporaneously published review paper [[](http://file.scirp.org/Html/10-8302395_47084.htm#r1)[1](http://file.scirp.org/Html/10-8302395_47084.htm#ref1)] . The thin oval at upper right outlines the domain of Φm and time for the practical applications of cosmic evolution that are examined in this research paper.

As a confirmed empiricist trained as an experimental physicist, I am skeptical of future forecasting because all such exercises entail much qualitative guesswork. Nor do I regard evolutionary events to be accurately predictable, even in principle, given that an element of chance always accompanies necessity in the process of natural selection; evolution is unceasing, uncaring, and unpredictable, all the while non-randomly eliminating over time the far majority of complex systems unable to adapt to changing environmental conditions [[](http://file.scirp.org/Html/10-8302395_47084.htm#r1)[1](http://file.scirp.org/Html/10-8302395_47084.htm#ref1)] . Even so, it seems inevitable, indeed quite ordinary, that new forms of complexity are destined to emerge—some of them perhaps eventually supplanting humanity and its tools as the most complex systems known—just as surely as people took precedence over plants and reptiles, and in turn even earlier life on Earth complexified beyond that of galaxies, stars, and planets that made life possible. Here I examine not specific predictions, as much as four general trends that might affect humans in the near future: anthropogenic heat warming us, smart machines challenging us, world economics puzzling us, and medical disease afflicting us. (05)

Chaison uses this work to help us see how complexity building applies to all complex systems including modern systems like cities and economies and, I am suggesting social work as well. This, he says, “is a sequel to a recent articulation of the full scenario of cosmic evolution—an expansive scientific worldview including galaxies, stars, planets, life, and society—that grants humans a sense of place in the Universe [[](http://file.scirp.org/Html/10-8302395_47084.htm#r1)[1](http://file.scirp.org/Html/10-8302395_47084.htm#ref1)] . Yet this highly interdisciplinary subject is more than an inclusive, subjective narrative of all that we witness in Nature; rather, as an objective study of change writ large, cosmic evolution is firmly grounded in natural science, in fact quantitatively so across many orders of magnitude in size, scale, time, and complexity. Nonetheless, its immense scope should not preclude specific, practical applications of real and useful merit for humanity and its vexatious society today.

Throughout the history of the Universe, as each type of ordered system became more complex, its normalized energy budget increased. Expressed as an energy rate density, Φm, a hierarchical scheme ranks known organized structures that have experienced, in turn, physical, biological, and cultural evolution: stars and galaxies (Φm = 10−2 - 102 erg/s/g), plants and animals (103 - 105), society and machines (≥105). [Figure 1](http://file.scirp.org/Html/10-8302395_47084.htm#f1) (*above*) sketches the rise in complexity among Nature’s many varied systems by plotting the change of energy rate density across ~14 Gy of time, from the beginning of the Universe to the present. Such a broad synthesis of natural science encapsulates the sum of “big history”, demonstrating in a single graph the interconnectedness of principal complex systems within and beyond planet Earth. This figure was discussed at length in [[](http://file.scirp.org/Html/10-8302395_47084.htm#r1)[1](http://file.scirp.org/Html/10-8302395_47084.htm#ref1)] (and more succinctly in [[](http://file.scirp.org/Html/10-8302395_47084.htm#r2)[2](http://file.scirp.org/Html/10-8302395_47084.htm#ref2)] ), as was its core hypothesis that Φm is a complexity metric that compactly compares commonalities among increasingly complex systems throughout the natural sciences. Notably stressed among earlier findings are various optimal energy ranges characterizing numerous complex systems—specifically, ranges in energy rate density that are empirically revealed by consistent, uniform analyses of a surprisingly wide spectrum of complex systems observed in Nature. This is cosmic evolution’s iconic graph against which I examine how this grand cosmological subject might conceivably be of practical relevance, and even importance, to worldly issues now confronting humankind on Earth.” (06)

In laymen’s terms, free energy available through the expansion of the universe is selected randomly to allow complex systems to become more complex. These energy flows are channeled through the emerging systems and if optimal, allow the systems to thrive. Too much energy and they burn out, too little and they starve. Social work is nothing more than a complex system becoming more complex. We don’t know the point at which the energy flows continue to be optimal or even if we can know. We do know two things about cultural evolution that make it different than previous steps in the evolutionary process. Humankind is more actively involved in “guiding” cultural evolution and the pace is ratcheting up to what feels, to me, like an out of control rate. There are thousands of such systems emerging culturally as we speak. Social work is a good one to look at for many reasons. First of all, it is fairly concrete and involves all of us. Secondly the numbers have emerged rapidly and although I only touch on what they might be telling us, the implications are probably important. David Baker, with tongue in cheek, I suspect, makes the point in his paper, “The Driving Forces An Patterns Of Evolution” (Baker 02). I can visualize Fermi up in heaven looking down at a universe drowning in data commenting to an angel friend, “I see”. In terms of humankind’s involvement, holy smoke, the church is on fire! As someone who has spent the past fourty years participating in the development of social welfare programs and policies, I understand that we are building faulty structures without clear functionality or relevant structure. And we don’t know the extent to which the need for the energy flows to be optimal, will continue to allow us to do that. Furthermore we are resistant to seeing what we are doing. The Tower of Babel comes to mind. On the other hand, we humans are pretty smart. If anyone can figure it out and help Mother Nature sustain intelligent life on planet earth, it is probably us. The rabbits can’t do it. Big History, Social Work and this paper are beginning steps toward being real about our place in the cosmos. We do not have a passive part to play. Social Welfare is not the only complex system emerging without clarity between structures and functions. Fortunately, Dr Chaisson gives us a metric, energy rate density, which is not particularly easy to use unless you are conversant with numbers in the range of 10 to the 37th power and above (my computer won’t even write it). It is also more concrete than what we ultimately need. But it, as well, is a beginning, an important one, since we have to have language to talk to each other about what we are discovering as we look more scientifically at the big picture.

**Summary and Conclusion**

On the eve of the third International Conference of Big History, it seems important to take stock in from whence we have come. Not so much the big bang or even the emergence of life on planet earth but rather much more recent history and even the future history I mention earlier in this paper. Social work is a product of this recent history which is flowing by so rapidly that it is hard to grasp the implications of. Cultural evolution is the driver and like biological or physical evolution before it, she plays no favorites. We have no way of measuring the functionality of the bureaucratic systems evolving via cultural evolution. Energy flows are either optimal or not and the systems they flow through either thrive or do not. All the while, complexity is building. It is not being built by or for humankind. It is being built according to the laws of thermodynamics and other components of natural science. The pace is, however, increasing because our species is involved. In other words, we play a role. In fact, human culture and the human brain are the pacesetters at the leading edge of the complexity process. Should we wish to try to influence the process further, we would need to build some new structures and acquaint ourselves more fully with the significance of the juncture we are at. I’m going to guess other intelligent beings have reached similar junctures elsewhere in the galaxy before and I’d like to think some made it beyond the point our collective learning appears to be stuck at now. We are a stubborn lot and we use denial very effectively. It will be interesting to see how deep the water has to be at high tide on Commercial Street in Portland before the people of Maine build the turbines we need to generate our electricity. In the meantime, it would seem social work might make a contribution going forward by helping humankind understand the significance of the optimal level of energy flows through the myriad social and economic programs which have emerged in the past several decades. What contributes to the enhanced well-being of our species and thereby to the enhanced well-being of all species is something we can study. We can look at the results we are getting given our current behaviors and decide whether we wish different outcomes. As I said above, the rabbits can’t do it. James Tierney, Auburn ME

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