CAL

The Civic Agenda and Logotechnics

A Charter for a Standing Workgroup

Sponsored by the

Institute for Learning Technologies

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LOGOTECHNICS...

What term, both precise and general, describes electronic information processing, denoting both the tools and their cultural effects? *Computing* possibly suffices, but it exaggerates the importance of hardware, the enabling machines, and even with respect to hardware, it slights the role of interactive multimedia, telecommunications, robotics, perhaps even parallel processing. We need a term like *transportation* or *communication*, one that does not pertain to a particular type of artefact, like *car* or *airplane*, *telephone*, *radio*, or *television*; we need a general term that encourages us to concentrate on the human, cultural significance of the matter. The Europeans speak of *informatics*, which might do, although it restricts the phenomenon too much to aspects of information, as if ideas, beliefs, feelings, hopes, and theories were not centrally involved.

Let's try something broader.

Logos: The Word that began begetting; for Heraclitus, that which is wise, the one that steers all things through all things; for Socrates, the emergent, rational thread in interactive discourse between sentient peers; and thereafter, the rational principle that governs and develops the universe, the root of logic, of all the *-ologies*, the many realms of tested and applied theorizing.

Techne: An art, skill, or craft, and in particular the practical art of making or doing things of use to people; reasoned action towards an end; systematic procedures by which complicated tasks can be accomplished; the creation of tools to augment the human capacity to act and thus the root of technique, technical, technology.

Logotechnics: Reasoned design of tools that augment the human capacity to think and to express feelings, emotions, beliefs, ideas, and theories; the creation of systems that permit people to spin threads of rational discourse through the interactive exchange of text, pictures, moving images, graphics, sounds, and algorithms; all the electronic resources and processing tools with which people extend their intellectual powers.

Logotechnics developed slowly until the twentieth century, with writing, mnemonic iconography, mathematics, printing, and mechanical tools of navigation, surveying, timekeeping, and scientific instrumentation having been its main accomplishments. During the mid-nineteenth century, logotechnics advanced at a more rapid rate with the successive introduction of powerful analog technologies for the storage and transmission of culture through photographs, telephone, sound recording, moving pictures, radio, and television. That pace has further quickened with the invention of digital technologies, using electronic, magnetic, and optical media, exploiting microtime, to create intelligent tools that expansively amplify our natural powers to use sight, hearing, touch, and kinetic movement to form ideas, to express cultural creations, and to control actions.

Historically, the era of **mechanics** is closing and that of **logotechnics** begins. It has a horizon, wondrously wide.

AND THE CHALLENGE...

Life has yet to perfect itself. We humans are far from equipoise. What is to be done? Much, very much: the achievement of our highest hopes.

So far, we, the people, have civilized ourselves marginally, spreading the fruits inequitably among us. Ignorance still prevails. The easiest advances have been taken, the difficult ones remain. Where much has been done, further reform become progressively harder: the accumulated remnants of past effort impede the making of new trials. Where people still stagger close to the start, the land is hard, resources scarce, the conditions disadvantageous. Relative to what humanity hopes to become, achieved culture is a youthful inspiration, whetting mature effort to convert mere promise into secure attainment.

In this yet marginal effort at civilization, an unfortunate perception misleads the most able persons and groups. They master the art of perfecting solutions to real problems in selected spheres of action. Naturally, they then largely restrict their attention to those mastered domains, for the past century, primarily manufactured production and consumption, and they then infer from their ability to command events in these zones that they and others have equally sure command of the whole historic process. But look about.

Serious, unsolved dilemmas persist and predominate. However significant the domain may be in which you, a knowledgeable person, can claim that you, or others like you, understand the problem and its solution, the spheres in which you cannot honestly make this claim are far larger and more portentous.

> Are you confident that we know how to solve the predicaments arising with the interaction of racial, ethnic, and religious majorities and minorities?

> Are you assured that the business cycle has been tamed and that the era of significant crises is past and that we know how to sustain a global exchange of capital, technology, and resources so that no part of the whole is subject to dislocating strains?

> Are you certain that the disparities between rich and poor can be sufficiently muted within local, regional, national, and global contexts so that significant groups will not be tempted by desperation to pursue strategies of violence, neither repressive nor revolutionary, damning the consequences?

> Are you sanguine that the environmental balance on a global scale will take care of itself no matter what industrial by-products we spew into it, or that the peoples of the world, teeming towards material plenty, will securely possess the cooperative discipline to refrain from contaminating the world with things of long-term harm to the environmental balance?

> Are you sure that catastrophic war can be avoided, that it will break out neither by some mad miscalculation of someone in power somewhere nor by a malfunctioning of some over-complicated control in one or another nuclear arsenal around the world?

Are you positive that social pathologies are simply appearances created by the pleadings of the oversensitive? That the persistent poverty of the underclass develops only because they lack the thrift and will to rise above their current condition? That drugs, and dropping out, teen suicide, and dogmatic allegiances of steadily widening scope are merely individual aberrations, not some growing grounding for a gigantic, gruesome escape from freedom?

Don't quibble with the wordings, for the full phenomena persist, however much we might adjust the phrasing to suit one or another perception of where the margins of the issues lie. It is not the margins, but the substance, that matters, and on the substance, most knowledgeable observers will answer most of these questions in the negative. These negatives point to real historic predicaments, situations which we neither understand nor know how to solve. Such predicaments still beset life in significant measure. These are, on the negative side, one large part of the challenge. However much you or I may believe our personal and professional lives to be securely in control, in major matters, we still are rolling dice with history.

On the positive side, people now participate in the emergence of significant new possibilities for the extension of human capacity. These are not simple incremental improvements of mundane actualities, like Teflon for our cookware. These are, instead, potential radically transforming experiences, which may interact in difficult ways with the negative challenges to enable us to fashion a different, future culture, a culture to which that of our time will stand as the culture of the middle ages stands to our own, as an interesting, significant, somewhat strange and distanced part of history.

Think briefly about the potentialities for living in the world that people are initiating in the extended now, creating a radical divide between the before and the after.

We are, in the extended now, mastering human biology in such a way that we are creating a perplexing problem of life and death. Deny it as we may, rational medicine and nutrition are converting both the conception of human life and the duty of human death from something that just happens in the natural course of things into a willed choice that happens only because persons take responsibility, this way or that, for making it happen.

We are, in the extended now, crossing the frontier from earth to space in such a way that we are radically altering what we understand the human habitat to be. Civilization began when people defined human place by exploiting diverse features of the natural topography to create houses, shrines, cities, and polities. Now habitats are beginning to become entirely self-enclosed and self-sustaining, able to be placed almost anywhere, on earth or beyond, and the meaning of this change for humanity's conception of itself and its place in nature will be profound.

We are, in the extended now, externalizing mind, the power to think, in the way that several thousand years ago people externalized memory, the power to recollect, learning to store information in

brute matter through pictures and writing, learning to recall it through reading and interpretation. Now we are rapidly learning to make matter store information in ways that are far less inert, less brute, converting electronics into powerful tools for selecting, deducing, inferring, and expressing ideas. In this new world where everyone has access to powerful tools of intellection, all linked together, cultural creativity and participation will be radically broadened and deepened in the same way that mechanized transportation has radically broadened and extended the capacity to travel.

We are, in the extended now, mastering material scarcity, creating productive systems that quite possibly will permit all people to satisfy their basic material needs. As that happens, a difficult problem of valuation arises, for hitherto the structures of valuation have all rested on the relative scarcity of things. A most thorough revaluation of values must emerge if we are to generate criteria for the formation and evaluation of possible purposes, where palpable need does not enforce basic standards of choice.

As such possibilities become actualities, they will create pressures to alter basic human constants that have hitherto structured common sense and sound judgment. The challenge, therefore, involves more than persisting predicaments; it consists further in challenging possibilities that will invite profound cultural innovation and activate perplexing atavisms, as is now evident in the fundamentalist surges in every major religion. Such tugs and pulls are the engines of history. One does not know what will result. One can only reflect, decide where one stands, and act accordingly, trying thereby to rise to the challenge.

OF THE NEXT MILLENNIUM:

How can logotechnics help respond to the great predicaments? The answer is not that logotechnics will somehow provide the missing ingredient that will make the solutions currently being attempted suddenly so effective that the problems wondrously disappear. People solve problems; they get out of predicaments.

Our historic predicaments and possibilities largely involve disjunctions between comprehension and complexity. People achieve historical stability and vital balance where their capacity to manage significant interactions comes to correlate with the actual level of complexity at which such interactions occur. For instance, racial, ethnic, and religious groupings provide cultural spaces in which shared, mutually comprehended beliefs have been developed as tested means for managing significant interactions. When majorities and minorities begin to interact, the tensions between such groupings arise structurally because, from the point of view of the one, the other, whatever it may be, threatens the established stability. The situation is doubly challenging: the interactions between the groupings add a new level of complexity for both and the presence of alternative mores makes each system less unselfconscious, less automatic, and therefore, less effective.

Most branches of culture -- religion, law, medicine, politics, engineering, commerce, and the like -- have their human effect by producing rules that

manage interactions of one or another type. Logotechnics differ from these other domains of culture in that its human effects arise as it increases the root capacity to manage interactions. Logotechnics change human potentialities, not simply the implementation of actualities. All the predicaments of our time teeter at that balance where the complexity of relevant interaction exceeds the capacity to manage such complexity available to those involved, whether they be the members of a group, class, nation, city, region, corporation, profession, generation, or what have you. The historic promise of logotechnics is not simply that it offers this or that concrete solution to this or that particular problem, but more elementally, that it can increase substantially the human power to generate and implement solutions of diverse type to all manner of challenges.

But should we hesitate, mindful of that cautionary tale, the Sorcerer's Apprentice, of Prometheus's painful fate, of Icarus's plunge on soaring too high, of the divine curse on those who have eaten of the fruit of knowledge? Critics of technology rightly assert that it is not an unbiased tool, and that it is especially not an unbiased tool when it acts to amplify human capacities to think, to communicate, and to act according to however people may choose. Might technology in general, and logotechnics in particular, as a potential accelerator of the technical drive in history, be quite the opposite of a promise, itself the cause and substance of our historic problems?

Here we stand. Such doubts are shrill and reactionary in the biases they impute to technology, holding it too easily to be a destabilizing, dehumanizing influence, a devilish temptation, a proof of the ineradicable sinfulness of man. We hold the biases of technology to be profoundly liberal, democratic, and humanistic, a reinvigoration of enlightened striving.

Practically, technology has been the human embodiment of Goethe's dying prayer to life -- *Mehr Licht! Mehr Licht!* Logotechnics will confidently extend, deepen, and accentuate the liberal, democratic, and humanistic biases of technology, energizing and fulfilling further the enlightenment aspirations of our heritage.

Why liberal? The diverse forms of liberalism hold in common a denial of doctrines of original sin, of the conviction that the human will is essentially perverse and consequently in need of external authorities that will discipline, correct, and curb it so that it will do less harm. Technology is an expression of the creative genius of the human will. To develop technology vigorously, people need a spirit of adventure, a trust that their works will conduce to well-being, a faith that in amplifying the power of the will to effect its purposes they are strengthening the sources, not of woe, but of beneficence in life. Such spirit, trust, and faith is quintessentially liberal, and it will pervade logotechnics, the technologies of the human spirit, of mind, of the capacity to think, to will, to feel, and to share all that with others.

Why democratic? The connection is immediate. Technology is abstract and universal, not concrete and particularistic. Technology is a great equalizer, devaluing the natural differences among people in strength, agility, or dexterity. Technology is meritocratic, not patriarchal, in that command of its powers gravitates to those who know and understand how to use them. Technology gives to many what without it is the privilege of the few, the leisure to participate in the polity, to deliberate over what laws are to govern, to choose who will administer them, and to set the purposes of the commonweal. Logotechnics will

further empower everyone to participate actively in the civic choices that follow when the mere struggle for survival has been won.

Why humanistic? In one way or another, humanists hold that mankind is a self-inventive enterprise. All that is given to us is the great gift of life; what we have and will become is thereafter the work of our self-creation. Technology -- skill, art, craft, considered technique -- constitutes the means of humanism, and humanism -- the continuous human decision of what to make of itself -- provides technology with its constitutive purposes. Technology without humanism leads to efficiency without purpose; humanism without technology dissipates into high-minded ineffectuality. Hitherto, mechanics have amplified the material expressions of human purposes; now logotechnics enables an unprecedented amplification of the intellectual and emotional expressions of human purposes, a free, egalitarian culture in which all can participate in human self-creation.

In these ways, the biases of technology are liberal, democratic, and humanistic, and in these ways, logotechnics will participate in and accentuate those biases. And they will do so with long duration, a matter of utmost importance for anything that bears the promise of historical significance. Logotechnics are not just another incremental innovation in our technical history. They constitute a major branch in development, one of immense potential, one that will take many generations to unfold its full significance.

Public discourse has a pace that is out of phase with historicity. Genuine historical change unfolds over time through numerous small steady actions that cumulatively depart from prior mores and habits. Events happen in a much more immediate frame of temporality. Occasionally these suddenly disclose historical change, but the transformative actions creating the change were long at work. Logotechnics provide a real force for historical change. They will equip people, not with mere ideas, a new cloak of fashion, but with substantial, working resources, as a consequence of which, those people will live differently than they would have lived without those resources.

Public discourse attends too closely to the events themselves, expecting them to be the cause of meaning and significance. We will attend steadily to the underlying reality, the long-acting causalities. These need to be nurtured, interpreted, and used for humane goals. When we speak of the Civic Agenda and Logotechnics, we propose precisely this: to nurture, interpret, and use logotechnics over the long duration to define and achieve a civic agenda of the highest human worth.

A PROJECT

With things human, a potentiality does not automatically culminate in actuality. Potentialities need to be nurtured to fulfillment: that is the immediate task with logotechnics. But with historically extensive, enduring potentialities, like logotechnics, no group can encompass the matter and nurture it whole. Our task in the Institute for Learning Technologies must be more specific:

> to clarify how people can bring logotechnics to bear upon the civic agenda of our time;

to show how people can more fully empower themselves through logotechnics to act constructively on their needs and aspirations;

These specifics center on the process of education, education in logotechnics and education through logotechnics, and most of all, education for a more fully perfected humanity, one that realizes itself with logotechnics.

Toward this end, the Institute for Learning Technologies will sponsor a standing workgroup on the Civic Agenda and Logotechnics. This group will be charged to perform the following tasks on a continuous basis.

To monitor and evaluate the development of logotechnics with particular attention to their developing capacity to recast how people can deal with the key predicaments and possibilities of the current juncture.

To understand how current design and implementation choices in logotechnics will affect the civic agenda and to build a persuasive case for those choices that have the most constructive public consequences.

To demonstrate to educators and civic groups, through its own program of dissemination, how logotechnics can be used with effect for public purposes.

To provide policy recommendations and technical assistance to other groups engaged in working on the civic agenda in an effort to extend their command of logotechnics and thus to empower them to pursue their civic purposes with more effect.

Currently, in pursuit of these tasks the CAL Workgroup is concentrating its activities into three practical areas: using hypermedia for public purposes, helping educators and public interest groups use networking to better achieve their goals, and developing authoring tools and information resources that will make logotechnics better serve the civic agenda.

In the firstof these practical areas, we are exploring interactive multimedia and its use in education and public policy discussions. Here we aim, by working independently and in cooperation with other groups, to explain and demonstrate how hypermedia can and should function for public and pedagogical purposes. The Workgroup is developing a position statement concering hypermedia and education for presentation on Apple Macintosh systems using their new programming resource, *HyperCard*. In the immediate future we aim to extend these efforts by developing, in cooperation with one or more public interest groups, strategies for putting interactive media to practical use informing public discussion of complex issues.

In the second of these areas, the Institute for Learning Technologies has been working with the Russell Sage Foundation to design and install a local-area-network for its premises and to work with the Foundation's scholars and staff to ensure that they will be able to use the network over time with full comprehension of its evolving capacities. Presently, we are actively discussing similar development projects with the National Drug Rehabilitation Institute and the American Psychological Association. In addition, the Institute currently seeks

funding for the early stages of a large, long-term project linking community service groups through computer and telecommunications networks, and we expect this project to grow into a sustained, major aspect of our work.

In the third, the Institute for Learning Technologies has been working to make available the intellectual tools and materials needed if logotechnics are to be brought to bear on civic issues in a timely and effective manner. Researchers and writers have a vast array of printed tools and resources well organized at their beck and call, and as a result they can concentrate almost exclusively on the matter at hand in preparing traditional treatments. The substantive tools and resources for the creation of multimedia works of serious intent are far less developed. It is not that material does not exist; it has not been readied for use in libraries and reference apparatuses. In particular, we have been working with diverse organizations, CEL Communications, WNET, the Smithsonian Institution, and the American History Workshop, toexplore and develop ways to make existing video resources, along with supporting images, programs, and texts, more easily available to educators seeking to create multimedia presentations. Over the long-term, the entire CAL Workgroup is committed to developing appropriate authoring tools and supporting resource libraries to make it possible for educators and public interest groups to further their work through the effective, economical use of logotechnics.

As an organization of people, the CAL WorkGroup consists of a small set of regular participants and a wider set of people who participate in its activities as the occasion warrants. We expect the roster of both sets to change somewhat over time as particular projects change and as people move from one to the other. Currently the regular participants are as follows.

Seth Chaiklin	To ...."
Andrew Hickmott	"To ...."
Robert McClintock	"To ensure that the changes in education wrought be the new information technologies enhance the public pursuit of humane culture and democratic equity."
Ellen Meier	To ...."
Hugh Osborn	To ...."
Christopher Pino	To ...."
Karen Swan	To ...."