

To Matt Fair and Joseph Keppler

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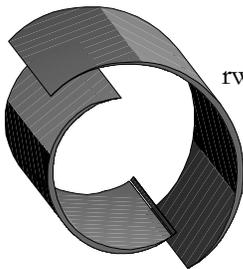
att and Joe,

Thanks for the letters! I've read the four of them several times. I include first some writing I did on Heim before I got your response to Heim, Matt, and after I read your review of Heim's book, Joseph, before we began this correspondence. It's reviewish writing for a while. Then I took it up again after reading your letter, Matt. And edited it all over the place, inserting and deleting, alerting and disseating and so forth. So the tone is primarily essayistic.

Michael Heim begins *ELECTRICLANGUAGE: a philosophical study of word processing* with his central question: "What impact will computerized word processing have on the process of human thought?" The question is large and vague. Note that he does not ask how word processing will 'change' "the process of human thought." The image he conjures is of "the process of human thought" being added by "computerized word processing."

He wrote the book using two different microcomputers (one of which is portable) and at least four different word processing programs.

That might do it.



rwel, in his excellent essay called "Politics and the English Language", spoke some time ago (before word processing) of the phenomenon of fast prose. It exists apart from any effects word processing might have on writers. Word processing simply allows writers to work more quickly, to produce 'prefabricated hen houses of prose' at a rate comparable to the production of modern dwellings.

It's easy to blame computers and computer programs for inculcating the habits of fast prose and for spreading fast prose around, but what are the demands of modern life that require the production of so many hen houses? What is the political and social environment that encourages the hasty production of so much print? The same environment encourages the quick manufacture of many non-verbal superfluties. The 'spirit' of the production might be similar.

Though Heim's is a fascinating book, he often loses sight of the subordinate role the phenomenon of

word processing plays to the larger social/political context in which it is situated. Automation has occurred within various spheres. Industry, for example. Automation is now occurring in the 'information industries' via word processing and telecommunications. Similar results will follow.

Of course, that's not the last word on the subject. And it's easy to criticize a book for what it isn't. And at some point, as in the case of the automation of other industries, the automation is sufficiently functional and 'productive' that it perpetuates itself, becomes indispensable to those who would 'competitively' produce the product in question so that the predispositions of the technology itself begin to subtly shape the possibilities for the future, begin to modify the language of the activity with their own silent agendas. As Orwell says, "A man may take to drink because he feels himself to be a failure, and then fail all the more completely because he drinks." One of McLuhan's more direct statements was that it's simplistic to maintain that 'Guns don't kill people. People kill people.' Most guns are designed to kill animals the size of people and deer. And guns are all over the place, a trigger waiting to be pulled. We in Canada do not have as many guns, per capita, as in the United States, and we have correspondingly fewer gunshot fatalities per capita. There are less murders here per capita than in the U.S. Guns have their own agendas. People will always find a way to kill each other. But guns are extra specially good.

To some extent, word processing enframes the writing that happens with it. Its predispositions, then, are definitely worth a look. Though there will be many results analogous to the results that occur with the automation of other activities, writing and language, if you're reading this, are particularly near and dear, and when we engage in writing and language, we are not involved in an activity that is exactly the same as other physical activities. Heim says:

The text processor is transforming the way philosophy, poetry, literature, social science, history, and the classics are done as much as computerised calculation has transformed the physical sciences based on mathematics. The word processor is the calculator of the humanist.

It seems to me that the most significant changes in the humanities wrought by the computer will have more to do with the electronic infra-structure through which texts are received and disseminated than with the word processor itself.

Bibliographies and footnotes to books that libraries have on-line may, at the touch of a button, reference the books to which they refer, presuming that they are also on-line. The effort involved in such an enterprise, however, is staggering. Modern scribes would work all day using character-recognizing scanners to convert books to disk, then 'clean up' about two hundred pages per day of the inevitable mistakes the scanner will make. Then they work on the cross referencing to other volumes on and off-line. In three months they know what they'll be doing for the next several years. And all the libraries coordinate their efforts so that the same book is zapped just once.

Perhaps it contributes to the fecundity of 'inter-textuality' and the crossing of many boundaries, to the synthesis of knowledge, to the insightful relation of different disciplines and, inevitably, to the creation of new disciplines. Maybe texts will be more easily available than they are now. Cheaper and more easily distributed.

This sort of quantitative change could give rise, eventually, to qualitative change. It does tend to be the case that where books (or texts) are few, change, be it social or scientific or literary, for instance,

proceeds more slowly and is at the hands of fewer.

Will such developments lead to paper books becoming quite rare? Not for now, and not without important changes to the way in which text is viewed electronically.

Reading screen text is too difficult on the eyes to support the regular reading of full-length texts, currently. Nor is screen text as portable as the book.

We realize, however, that the wood supply is decreasing and our use of it will have to be decreased accordingly (don't we?). One electronic viewing device can display thousands of full-length texts.

We fetishize the book. It is part of the "bourgeois gloss" you speak of, Matt. Beyond the gloss, however, part of the charm of the book is that you may grasp it, hold it in the palm of the hand. Unlike a manuscript, even, and certainly unlike electric text. The book embodies the silent cogitations inside it, gives shape to the non-material musings of the dead. It is something to hold on to, however desperately. I suspect that this sort of charm precedes the bourgeois.

For the writer, the screen is not sufficiently large that all one's writing may be done without intermediary printouts. We often look at two or three or four pages simultaneously. The current affordable screens just aren't big enough. Most word processors allow the writer to display parts of many pages on screen simultaneously, but the screens are too small to be as useful as the desktop. The answer to this problem, however, is simple: get a bigger screen or push the buttons more quickly.

In the seemingly inevitable event that electric text becomes primary in our day to day experience of the written word, will there be the sort of democracy of access we are often told will happen? Maybe. The Internet, a world-wide computer network 'accessed' by universities and other research institutes, lists many pages of electronic 'bulletin boards' which allow users to leave messages for others to read. One may also leave on the bulletin board programs for others to 'download' for their own use. I recall perusing one bulletin board called "Computers and Society." Speaking of the Internet itself, one person had said, "Don't tell anyone, but this is as good as it gets." Meaning that the lack of regulation within the Internet will pass away into Networks where security and access to information is more strictly monitored and regulated. This does seem likely. There is no reason why cyberspace cannot be organized according to the principles of reality.

Maybe some businesses will no longer accept cash and won't possess the technology to do so. They will only accept credit cards, and then only a card with a high enough balance. Only the poor will use cash. So cash will still be used a lot, but those who do not cater to the poor will simply be incapable of doing so. The distance between rich and poor, in this scenario, becomes even greater than it is now when there is no longer 'a common currency.'

To return to Heim's question of whether word processing will have as dramatic an influence on the humanities as computers have had on the physical sciences, banking, and industry: the answer, I think, is that the infra-structure surrounding the ways in which texts are received and disseminated will be much more important a concern in evaluating changes within the humanities than will be the simple word processor. To be fair to Heim, he does not seem to be ignorant of this point, as you point out, Matt. You note he says that "The marketing of publications based on scarcity, hierarchical peers election, and the cost of scarce materials may lose place to the greater abundance of computer accessible material."

But I don't share your optimism, Matt, concerning the possibility of a democratic cyberspace. I don't perceive that the form of cyberspace necessitates either the sort of freedom of access or the lack of "hierarchical peer election" that you hope exists there (if it is even desirable, in many instances). It is true, however, that the decisions are being made now. How to influence these decisions and come to grips with the issues involved?

The writer of *The Cuckoo's Egg*, Cliff Stoll, was working at a scientific computing centre in California. He was given the dull job of determining why the users' time-accounts did not quite balance. It turned out that the 75 cent error was the result of interference with the accounts by some West Germans (operating from Germany over the networks) who were able to penetrate Stoll's computing facility and other facilities around the world. In particular, the hackers were penetrating U.S. military facilities and selling the information to the KGB (the former Soviet Union secret service). Stoll, who was initially simply fascinated by the process involved in trying to figure out what the hackers were doing and who they were, began to consider the issues a bit more deeply. The hackers were not so much taking crowbars to locked doors as checking to see if the doors were open, and entering if they were. Though there was some knowledge involved in getting access and covering tracks.

Stoll insists that to maintain the sort of freedom to information that exists in large areas of cyberspace, it is important to pursue and prosecute those who violate the boundaries of privacy. Those with something to lose in cyberspace will not wait on a gentleman's agreement. Security systems are another hot topic in Computer Science.

Sometimes information has some monetary value or can be transformed into other information with monetary value. And often the value of the information depends on its scarcity. The scarcer it is (as long as people want it) the more it's worth. People want to make money. Hence cyberspace will be tightly separated into the ten thousand things.

I see a lot of the sort of mentality in people who want the photocopy machines removed from the University's library because author's don't profit from photocopying. But why perpetuate notions of ownership that are absurd in the face of the real debt thinkers owe other thinkers. T.S. Eliot said that bad writers borrow and good writers steal. Make it their own. So I'm all for stealing. Still, however, there is a debt. But it is absurd to legislate real-world accounts for such debts.

Similarly, it is small to insist that access to the books in a library preclude their reproduction on-site. It's against the spirit of open inquiry that is essential to a healthy intellectual environment. Further, not everybody can afford to buy all the books that they feel they need to carry out their inquiries. It is another matter, however, if you make money from the use of others' 'intellectual property'. Then we definitely incur an obligation that should be repaid with money.

Writers must eat too, but why crusade for further perpetuation of the idea of art as commodity, art as a product no different from other things produced to function pleasantly within a market society? To crusade for the 'artist's right' to have work treated like any other commodity is to invalidate the subversive force of writing, its destructive content, its truth, and denigrate the "alien and alienating oeuvres of intellectual culture" to the level of "familiar goods and services" (to paraphrase your quote from Marcuse, Matt).

I hope I'm wrong, but it seems to me that the authoritative mentality I encounter in the corridors of computer science and business computing is no less blind to these considerations than the mentality of the so-called artists who want writing even more deeply entrenched within reality than it already is.

I am seduced by the elegant scope and beauty of mathematics, but I also know that Pythagoras introduced coinage into the area he lived in and was worshipped as a god by the accusmatici, his religious disciples. Power was what came as freely to his hands as the magnificent music he is purported to have been capable of making. We are under his influence still though history does not record any writings of his at all.

You say, Matt, that "the bridging from scarcity to abundance is an old theme, and in my humble opinion, the deep human agenda." Sometimes it seems to me that the "deep human agenda" is deeply conflicted.

Money is not like grain. It may be that there is currently enough grain to feed everybody. You maintain that there is. It's possible. I don't know. But, as we speak, the grain in the hopper may not have changed at all while the price it captures changes according to the prevailing supply and demand and the various whims and schemes of those who live to deal in grain.

In *Major Barbara* by G.B. Shaw, a well-meaning man falls heir to a vast financial empire. He finds it repugnant that huge grain surpluses should rot, so he opens the gates on the grain to those who need it. The price of grain drops. The farmers stop growing it. The supply becomes too low. The situation is worse than before the gates were opened. He closes them.

The damming of abundance presses us. That some die so that others may live is tragic. But a certain amount of death by way of this 'deep human agenda' is unavoidable. It is also true that we can be greedy butchers. Even when we're not on the warpath we are dependent on the loss of others to supply us with our own gain.

Our victories are often other people's losses. Our greatest victories are of the spirit and come as a result, often, of dealing with our own greatest losses. Our strengths are inseparable from our weaknesses. That which powers the wheel is the damming of human desire and need and the force thus exerted on the dynamo. And it in turn generates the current of alternating attractions and repulsions that flow to the beneficiaries of the power, few or many as the case may be. The animation of cyberspace, the man's woman, the woman's man, the light at night, the heated house, the winner's prize by default or by design. We are powered ourselves by the goad of our own contradictions.

Your idea that there is enough money to go around may ignore the basic need for and necessary perpetuation of scarcity and hierarchy within any trading economy. Because the price to be fetched, even when monopolies cannot dictate exorbitant prices, is based on scarcity and demand. And not just in a capitalistic society. The price of things turns on the oceans of human desire and need. To get what we haven't got, we want what we have to be valuable.

I suppose I'm attempting to rationalize how I feel. In *The Tibetan Book of the Dead* there is a way out of continuing to spin on the wheel. But it's not so much something to be desired or a reward for attaining enlightenment as this: if we should come to be no longer driven by the alternating attraction and repulsion then we simply cease to exist. Whether we arrive by way of the reconciliation of opposites or

the observation of the 5:01: in either case, we no longer partake of the dynamic necessary for existence. And that necessarily involves conflict.

Our own greatest victories are of the spirit. “Where will it all end?” “Please go on.”



ust as discussions on the nature of men (or women) tend to classify traits as specifically those of men (or women) when, often, these traits are just as common to women (or men) as they are to men (or women), one sometimes finds in discussions of technology claims that such and such a characteristic or effect on society or the individual is unique to the technology under discussion when, in fact, one can find the same characteristic or effect in some other setting independent from the technology.

For instance, Heim says:

Because of its connection with mental skills, literacy, in the sense of alphabetic literacy, has meant the ability of the individual to rise above particular circumstances and enter a shared world of intelligibility. This shared world of intellect is believed to disclose a superior reality which encompasses and masters the common sense and mostly inarticulate grasp we have on things we deal with intuitively.

But spoken language, independent from reading and writing, also offers the individual the ability to “rise above particular circumstances and enter a shared world of intelligibility.” But he alludes to an aspect of alphabetic literacy that I would like to explore: the relation of the page, the book, and alphabetic literacy to the Platonic “superior reality.”

To do some things you need a pen, a piece of paper, and a book or two. Solving mathematical problems, for instance. Solving a problem in geometry without drawing a few pictures is difficult. Or solving an algebraic equation without writing down the steps. The nature of our memory (or perhaps our training of our memory) necessitates that we resort to the sand or page or the screen.

Given that epics have been entirely composed and set down only in memory, it may be possible that we are capable of an epic mathematical discourse that exists only in memory. In rhyming couplets, perhaps. No, that would be too short a stanza, wouldn't it? Who knows?

The page and the book, among other things, are crutches that support our frail memory. And they are extensible. Ladders or bridges. Bridges between the past and the present. They allow us to go on, to continue with intensity in the present knowing that we may, and will, and must look back to discover more clearly what we have made; to change it, strengthen the connections, and ponder what is to come. Or to change our mind about what we have made, to examine it in detail and begin afresh.

Not only because books can travel more widely than we may ourselves (and so disseminate the ideas, fancies, opinions, and knowledge contained in them) has the book made possible much of our civilization, but also because the book allows the writer to develop extended runs of ingenuity, poetical, scientific, or otherwise that would be unthinkable without the memory afforded by notation and the possibility of referring back through the generations to other detailed memories and cogitations. Books

make this possible, for better or worse, even though we often read them in a linear manner.

They allow us to achieve what we could not achieve without symbolic notation, memory being as it is even among those who are not familiar with symbolic notation, those whose cultural history has been even more dependent on memory. And books allow us to read the utterances of the dead or the absent. Books have been the great repositories of reflection and thought upon which western civilization has been constructed. The Western world has issued from the book and the intricate imaginings of the large memory made available to the living.

The Renaissance, among its other causes, had to do with the return to the West of Greek and Latin texts of antiquity from Constantinople and the East as a result of the Crusades. The advent of the press spread the knowledge, the word, an ideal virus, resulting in the explosion of letters and knowledge. So the past, its whispers, its corruptions, and its geniuses exert their influence on the architecture of what is and what is to come. With the return of ancient texts to the West and an atmosphere of re-examination prevailing, the Greek and Latin dead were heard in a way that was not possible during the previous, more dogmatic time. The ancient writers took up congenial residence once again in the West.

“There are certain thoughts which are stronger than ourselves,” said Philolaus of Tarentum, a fifth-century B.C. Pythagorean. Before Pythagoras, philosopher/scientists had asked the question ‘What are things made of?’ Pythagoras’s genius was to suggest that to inquire into the forms of things will lead us farther.

The book has the mystique about it of the realm of forms.



oe, thanks for letting me know about the book *Science as Writing*. I'll check it out. All three of us appreciate deliberate writing down to the dots. *Data Compression and Error Control Techniques with Applications* is down and dirty writing. Definition, Lemma, Theorem, Corollary, Remark, mainly. Unlike texts meant primarily for classes in university, the book's got no questions in it. Instead, the proofs are enigmatically succinct. The editor, Vito Cappellini, never lays all the cards on the table. If you can work your way through this book, you understand contemporary Information Theory. I've spent three days on 20 pages of this 300 page book.

Reading it is unlike reading poetry or prose in that the voice is absent, usually. Though the hand is very much present, the style. It's written in formal mathematics. The more completely the author disappears into the conventions of the style, the more readable it is, in a sense, if you're familiar with the conventions, the language of mathematics. Still, the hand is present: the conventions do not rule out the possibility of being sloppy with them, of just getting by. And the conventions don't determine the way the proofs go. Cappellini writes and edits as one might who had read mathematics for a long time and wished to complement the subject of the book with an appropriately concentrated style.

I notice that you often make reference to and/or write in the manner of haiku and, perhaps, other Japanese or Eastern forms. I see this in “The Longest Days”, in “The Sky Begins at Your Feet,” and in,

say, the haiku “Actually, Americans learn that they are free. We hear it all the time.” If it is intended as a haiku.

After I received Matt’s last two letters, we talked over the phone about Jeff Derksen’s *Down Time* and Information Theory. You, Joe, and Derksen, and many poets through time (particularly in our century) have been driving toward zero in writing, minimalism. Compression, economy, salvage and reconstruction that involves deconstruction. What can be salvaged from the slag of the tongue? Less is more. Especially since more is usually less. I think of you at your welding classes hammering and torching together disparate materials. And in your writing, too. With the intensity of the welder.

Information Theory, or the theory of communication, (founded in 1948 by C.E. Shannon), is concerned with techniques for shrinking (compressing) data files in such a way that they can later be expanded to their original state. It is also concerned with how to correct and/or detect errors in transmissions. Like so many latter-twentieth mathematical theories, “The first applications... were mainly in the area of space digital telemetry or military communications.” A theory of communication, outer space, and the military; where are the applications of a theory of irony?

More recently, and especially in the past decade, the applications have been widely extended to satellite telecommunication systems, ground telephony, telemetry and data transmission systems to increase the efficiency of the communication link.

The software system associated with telephone communications is the largest the world has seen. It’s even larger than the software system used in putting men on the moon. Cappellini’s book also deals with applications in speech compression and vocoders, digital processing and transmission of facsimile and television images, and with biomedical and remote sensing applications.

Efficient data compression and error control techniques are worth a lot of money because they reduce the time involved and the probability of error in the transmission of messages. Also, data compression reduces the amount of memory required to store information.

As the radio spews ads to me I wonder about the value of the information thus transmitted and stored and the price of making it easy.

I consider the incredibly abstract nature of Information Theory. It is a mathematical theory and so has nothing whatever to do directly with military or any other applications. The ingenuity and elegance of the theory are remarkable. It is a theory concerned primarily with abstract entities: data.

Not only are the proofs succinct, which is appropriate to the subject of compression, but the theory itself, being mathematical, has a generality (not quite the same as ambiguity) to it that allows for wide application. The scope of the generality adds another dimension of richness and compression to the theory.

The theory does not at all concern itself with electricity or computers or telecommunications lines. The theory’s concerns are quite independent of the means by which the messages are transmitted and the type of symbols transmitted. Cappellini’s book is quite intensely concentrated.

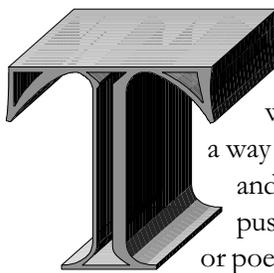
I can remember wondering, as a child, at the impossible thinness of paper. How could you make

paper, I wondered? I remember the satisfaction of making a scroll from birch bark and trying to make it both thin and homogenous in thickness. Still the question remained. The thinness of paper that approaches the ideal no-thickness of the Euclidean plane, thin enough to cut flesh. The sharp and telling distinction. The uniform flatness suggests the Euclidean plane. The page is so thin that if it were much thinner the words would disappear, as though the drive of the page was to disappear altogether into the realm of the forms.

And the thinness of the page is a good way to compress the information into the manageable, regular, and familiar shape of the book.

The pages and the shape of the book suggest several of the ideals of Euclidean geometry. And the compression of the pages, intense enough that we can hold *The Elements* or *The Bible* or *Ancilla to the Pre-Socratic Philosophers* in the palm of the hand, suggests the intensity of concentration associated with the book.

What is the relation of the page and the book and the alphabet to the Platonic realm of forms? To what extent is the existence of the non-material the message of the page, and to what extent is knowledge of the non-material inculcated or encouraged by the agenda of symbolic notation?



The modern understanding, since non-Euclidean geometries were proved to be as consistent (i.e., free from logical contradiction) as Euclidean geometry is that we make metaphors rather than discover immutable correspondences between a way things are and our thoughts. As Coleridge pointed out, there are two legged and three and four and five legged metaphors but any of them will fall over if you push hard enough. We make incomplete models, metaphors be they mathematical or poetic.

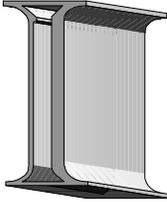
Humpty Dumpty almost said “When I say a word it means exactly what I say it means,” but the problem is that we rarely say what it means and only say the word. If I define a word then the definition should not contain the word I am defining. In such case, some words will have no definition. The idea of a ‘collection’ is atomic in mathematics. Presumably it needs no definition and is intuitively plausible. However, any dictionary is circular in its definitions.

Anaxagoras of Clazomenae, who was in his prime about 460 B.C. and who, we hear, wrote one book which was on sale at Athens for one drachma at the end of the fifth century, said:

And since there are equal parts of Great and Small, so too similarly in everything there must be everything.

Similarly, since the definitions of words are circular, there are at least two circles in the words we speak and probably many more. Some connected, some not. And we enter through them, at best, as the sparrow does the turbulence of the air. We see in its flight the traces of invisible currents. Its articulate flight reveals the curl of many circles and how it takes to the edge of them, perceives the corridors that we don't. Within the freedom afforded by the rolling air it traces so capaciously, the sparrow attends to the canopy of air and each thing in it, occasionally making you the centre of a circle as you walk through the field. And this, you know, is what it is to be alive and love so well the articulation of where we live.

“As silent as a mirror is believed/ Realities plunge in silence by...”. What is the relation of the page and the book and the alphabet to the Platonic realm of forms? To what extent is the existence of the non-material the message of the page, and to what extent is knowledge of the non-material inculcated or encouraged by the agenda of symbolic notation? Another entrance into mystery? If we enter such questions it seems we must, as Plato did at the height of many arguments, resort to myth and poetry. There is a point at which we must simply acknowledge and appreciate mystery.



In *Heart of Darkness*, Conrad draws a picture of our (?) culture, western European/ North American culture, I mean, as having a drive for power over others and over nature at its core, a drive to subdue the other to a place within the Order. It seems to me, anyway, that this is central to *Heart of Darkness*.

I've read various pre-20th century philosophers who have assumed the existence of *a priori* truth. Interestingly enough, several of them, including Plato, Kant, and Hegel have mentioned what is now known as the parallel postulate or a result that's logically equivalent to the parallel postulate as a prime example of an *a priori* truth. The parallel postulate says 'Given a line A and a point b not on A , there is one and only one line B through b such that A and B are parallel.' The philosophers presumed that this property was necessary in any consistent model of space. But it's not. Non-Euclidean geometries suppose otherwise and are as free from logical contradiction as is Euclidean geometry.

However, even though we build incomplete models of incompletely perceived phenomenon, works of art and mathematics, for instance, may nonetheless satisfy people from different cultures and times. Like an icosahedron within a dodecahedron or a dodecahedron within an icosahedron, the two worlds touch at certain points. And the salience of the meeting points has to do with the degree to which the artist or mathematician has been able to represent abstractly whatever powers the work.

Some of the African art we saw at the museum of anthropology in Vancouver, Joe, insists to me on 'its subversive force, its destructive content, its truth, the alien and alienating oeuvre of its intellectual culture and is quite beyond familiar goods and services,' to paraphrase part of Matt's quote from Marcuse. The prominence of the head, the wild intensity of the expression, the diminutive and wiry body that protrudes like a hand from below the head, the combination of carefully smoothed curve and aggressive line that shape the imperviously black piece—all of these suggest to me not a realistic representation of the body, but a forceful abstraction from the form of the body of an articulate and restless wild spirit that travels far and fast, that claims a boldness, an audaciousness for its own and gives that back to the witness of this power.

This piece is a tremendous victory of the spirit and owes a great debt, no doubt, to the techniques and forms of sculpture extant within the culture from which it came, however unique the victory.

But it is also a victory of abstraction. It is a representation, after all. It makes visible the invisible.

The human ability to abstract, to create or discover the skeletal dynamic and to then represent that

dynamic in words or sculpture or computers, for instance—this ability to make the invisible visible sometimes takes my breath away. The bare bones of it, the concentrated intensity of the bare bones.

The quest to create artificial intelligence must involve science and philosophy and linguistics and, possibly, neuro-physiology in its attempt to embody thought in a machine. The quest for artificial intelligence is currently disdained by most computer scientists who, instead, pursue a less necessarily philosophical line of inquiry. It is a vainglorious quest, no doubt, like Dr. Frankenstein's. However, just as we will pursue the secrets and not-so-secrets of being, of spirituality, of the nature of divinity, so will we pursue the secrets of matter, of the sun and its nuclear chemistry, of the cell and its hereditary reproduction, and of our own processes of thought. We are incurably voracious in these matters, are we not? We are as wild, in this way, as the African spirit that so insists on its audacity and wide-ranging power. The quest for artificial intelligence is, perhaps, a quest to set the sculpture in motion.

Useless to insist that it cannot be done or would loose apocalypse if it were. We are too voracious for knowledge to stop and will not be satisfied with anything less than the sort of Promethean knowledge that inheres in the fierce chemistry of the sun and knowledge of the infinite.

This is dangerous. Finally, ultimately. It is not different from the dangerous audacity loosed by art. There is no black nor white magic. Only magic.

The *Heart of Darkness* proceeds, the vision of Plato and Pythagoras and Mr. Kurtz and Doctor Frankenstein. By way of our ability to abstract, to fashion from contemplation of the supra-human realm of abstraction intense representations of bare bones. And we may ultimately bare the bones of us all in pursuit of this too stern, too lofty and supra-human vision of a light too bright for humans to endure, enslaving one another as we go in the pursuit of power.

Toenail Clippings

1 Michael Heim, *ELECTRIC LANGUAGE: a philosophical study of word processing* (New Haven: Yale University Press, 1987), p. 1.

2 George Orwell, "Politics and the English Language", from *Language Awareness*, 2nd ed., edited by Paul Eschholz, Alfred Rosa, and Virginia Clark (New York: St. Martin's Press, 1978), pp 23-35.

3 *ibid.*, p. 23.

4 Heim, p. 4.

5 Cliff Stoll, *The Cuckoo's Egg* (New York: Simon and Schuster, 1989).

6 Anaximander in *Ancilla to the Pre Socratic Philosophers*, edited by Kathleen Freeman (Cambridge, Mass.: Harvard University Press, 1983), p. 19.

7 Heim, p. 23.

8 Philolaus in *Ancilla to the Pre Socratic Philosophers*, p. 76.

9 ed. V. Cappellini, *Data Compression and Error Control Techniques with Applications* (Academic Press, 1985).

10 Cappellini, p. xiii.

11 *ibid.*, p. xiii.

12 Anaxagoras in *Ancilla to the Pre Socratic Philosophers*, p. 84.

13 Hart Crane, "Legend".