A Taste for Number Magic

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> As far as economists are concerned, $100 profit on the sale of cocaine constitutes the same "value" as a $100 profit on the sale of penicillin.

Preface: On the Global Economic Crisis

Between November 1997 and March 1998 I published three articles in *NetFuture* under the title, "Beyond the Dreams of Avarice", where I commented on certain destructive misunderstandings of capitalism.[1] I subsequently conflated those three articles into a single chapter of my recent book, *Devices of the Soul: Battling for Our Selves in an Age of Machines* (O'Reilly Media, 2007). While streamlining and condensing the presentation, I found no need to alter the text substantively. And, in the current economic crisis, that text now seems to me at least as relevant as when I first wrote it over ten years ago. So I've decided to offer the book chapter here, by kind permission of the publisher.[2]

Given that our elected representatives in Washington, all the way up to the president and president-elect, seem to have little choice but to follow the direction of their esoterically educated economic advisers, and given that economists themselves — more and more by their own admission — have grossly failed in their understanding of what is happening to us, it might seem presumptuous for people like you and me to weigh in on the issues.

Certainly I would be incapable of engaging the economists on their own erudite ground. But that ground — or, rather, the lack of any solid ground — is exactly the problem. We've allowed economics to become a kind of intellectual castle in the air, too immaculate and pristine for contamination by the common reality in which we are all rooted. Just as, following the discovery of the double helix in the 1950s, scientists were so transfixed by beautifully describable "genetic mechanisms" that they radically falsified the living reality of the organism — a falsification evident to anyone who actually looked at the organism itself — so likewise the economists' infatuation with much-too-neat "market mechanisms" has radically betrayed our understanding of

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1 You can also read the original three articles by going to *NetFuture* #57, *NetFuture* #60, and *NetFuture* #68.

2 You can obtain further information or order the book by going to the O'Reilly Media website, or by calling O'Reilly Media at 800-998-9938.

actual economies. In other words, economists may need outside help in bringing them back to reality.

While most of us have no claim to any penetration of the sophisticated theories and formulas of the economic guild, we do have one advantage over most economists: as guild-outsiders, we are free to refer, without blinders, to all the realities of human economic life. We are not so likely, therefore, to fall for patent absurdities, such as the (now former?) belief that unfettered trade in things like currencies and derivatives can help eliminate inefficiencies in the marketplace.

The fundamental problem here is precisely the distance between the resulting play with detached numbers on the one hand, and actual goods and services on the other. Such distance does not foster acuity of vision for spotting true economic inefficiencies, but only for grasping at economy-bending, profit-making opportunities. Among the factors helping to disguise this truth from theorists has been their commitment to the perverted, fairy-tale doctrine that self-seeking is an essential virtue of capitalism, magically converted by an Invisible Hand into social good. This doctrine is a primary focus of the article below.

How could we ever have imagined that sending people off on profit-making schemes — in an abstract, quantitative realm where the numbers are detached from real values and needs — could do anything other than create continually new and undreamt-of (and never adequately regulatable) opportunities for market disruption? How could we have imagined that banks and investments houses — supposedly serving the needs of the real economy — could forever reap profits totally out of line with the increased productivity of that economy without introducing terrible distortions *somewhere*? As the BBC's Robert Peston has written:

> Those who run banks … have for years seen themselves as creators and manufacturers of financial products, companies that can generate incremental wealth and can grow faster than the underlying rate of the economy.
>
> They didn't want to see themselves as the infrastructure of the economy, that couldn't and shouldn't attempt to push up their profits at an accelerating rate. Somehow it was a bit too humiliating to be no more than the pipework for the real generators of wealth, companies with genuinely new services, real products and real technology.
>
> So bankers created and exploited new "financial technology" that enriched themselves (for a while, at least) and was supposedly benefiting all of us by providing unlimited quantities of credit at astonishingly cheap rates. …
>
> If our banks simply concentrated on the very basics — taking deposits, providing simple loans to customers they actually know, moving our money to where we want it to go — would that be so disastrous?

And what is true of banks and investment houses is equally true of individual investors-in-the-mass: when we seek nothing but maximum mathematical increase of funds — when we bid up the price of assets in a search, not for intrinsic value, but for profit — we exert an unstoppable distorting pressure upon the economy. This is the stuff of bubbles — not to mention moral compromise — and perhaps few among us can claim to be wholly untainted on this score.

There is something necessary and healthy about profit connected to actual *goods* and *services*, and there is something unreal and sick about profit-for-profit's sake. This is a distinction that economists have flatly and aggressively set their faces against. But until they have made it a central element of their theories, they have little hope for understanding the *human* exchange that is, after all, what economics is supposed to be about. Nor is all this "mere theory." Ideas have consequences, and the Invisible Hand of economic theory, in its much more truthful, more pitiless, and less idealized guise, is now bearing down on citizens around the world.

So these are things that people like you and me have every right to think about, and *should* think about. It seems a shame that there is still so little recognition of the essential issues at high, policy-making levels. But events themselves have a way, at times, of forcing healthy change, if only we show the least bit of willingness to follow their lead.

There is no way to know at the moment how much of our economic system will suffer terminal collapse over the coming months and years — or how much will be saved in such a way as to perpetuate the underlying problems that have brought us to this place. But if the necessary "creative destruction" is allowed to occur, then, whatever the necessities at high, policy-making levels, the way you and I think about these things in our local communities, and the way we act upon our thoughts, may help to shape new institutions that can only be built slowly, from the ground up.

A taste for number magic

It's one thing to work toward a worthwhile goal, pursuing it in an economically disciplined and profitable fashion. It's quite another thing to make profit your primary goal and the measure of everything else.

Society's welfare hangs upon the difference. The difference, moreover, is immediately recognizable in all concrete human contexts where people are actually paying attention to each other. It's the difference between serving each other's needs as effectively as possible, and *using* each other. And yet, the concerted drive of economic theory and commercial practice has been to obliterate the distinction. To succeed in this would be to obliterate ourselves.

It's a strange and pernicious notion that has been foisted upon Western society by economists: you and I, they tell us, by giving free rein to greed, selfishness, competitive malice, and megalomania, perform a valuable public service. We can spend our days pitting ourselves against the welfare and livelihood of others, and then trust "the market" to transform our venality into a public good.

Nor is this aberration a peculiarity of the ivory tower. When the research director at an investment firm says, "Greed is good" (*Business Week* 1997b), an aggressive claim lies behind the intentional provocation. It is the claim that the only way to secure social value is to "pursue the numbers," and if greed happens to be the motive for doing this — well, the numbers will still bless us. Somehow, through a kind of magic, the social value will automatically condense out of the numbers and percolate through society as a healing balm.

Business Week capsulized the thought in a column entitled "Spend and Grow Rich — It's the American Way." It dealt with "the industrious ant and the devil-may-care grasshopper," concluding:

> Japan and Germany still don't grasp that consumption is acceptable. Even good. In the real-life version of the old fable, the ants lose. (1998a)

No, hardly real life. But my point is not the misanthropic one that consumption is bad. Rather, it is that *Business Week*'s statement, as given, is startlingly vacuous. It says nothing about what sort of consumption is good. Lacking any such qualitative caveat, it clearly asserts that the consumer's monetary transactions *as such* — their sheer, numerable quantity — is what produces the good.

This brings us to the doctrine of the Invisible Hand, the economist's name for the intelligent mechanism through which the self-interested pursuits of myriad individuals supposedly result in the greatest possible good for society as a whole. "Harnessing the 'base' motive of material self-interest to promote the common good," according to economist Charles Schultze, "is perhaps *the* most important social invention mankind has yet achieved" (quoted in Kuttner 1996, p. 36).

Even crass expressions of this doctrine have become more or less socially acceptable. For example, there's the advertising director defending ads that glorify selfishness:

> No one's really worrying about what it's teaching impressionable youth. Hey, I'm in the business of convincing people to buy things they don't need. (*Business Week* 1997a)

Then there are the "anti-ads" — advertisements that pretend to respect young people and to share their skepticism about advertisements. As one commentator (Shenk 1997) notes, "Marketers admit that the 'honesty' of these ads is a conceit" — in fact, a conceit precisely designed to provoke unconscious consumer choices, which is the quintessential form of disrespect. (It's called "brainwashing" in other contexts.)

How could this grotesque notion — the notion that private vice equals public good — gain such widespread acceptance? How can we blindly assume a kind of alchemical transformation going on all around us when we never actually see it at work in concrete situations?

When I show disrespect to my wife, or compete with her in a manner that puts my interests above hers, or try to coerce her choices without her knowledge, the result is never an increased good for our society of two. It is more like hell. And the same thing holds for our larger family, and for our neighborhood. It also holds among co-workers at the office and when friends and neighbors sell things to each other at a local bazaar. In fact, it holds wherever people have to do with people.

This is the rock-bottom fact — a fact overwhelming in its significance if we prefer to understand the real world. Let the economists show us concrete examples where things work otherwise. Where, exactly, is the Great Divide past which the Invisible Hand produces results opposite to those we see in our daily lives and feel in the sting of our consciences?

The Importance of Capitalism

To say all this is not to impugn the market. Quite the contrary. It is to say that the market is such a critically important human achievement that what we do there actually matters. That's why our greed makes a difference. There is no special capitalist magic when it comes to greed. We are imperfect creatures, and it's true that our families often can survive our imperfections, as can our governing institutions, our civic organizations, our churches — and, yes, our businesses. "Can survive," I say — but this requires that our baser instincts be hedged around by social convention, institutional safeguards, a healthy education, a will toward self-improvement, and so on.

It also requires that when a particular base instinct comes disturbingly to the fore in society, we begin to work on its taming in a more conscious and explicit way. And, for this purpose, saying that we can be as greedy as we wish because the market will make a virtue of our greed hardly qualifies as the right sort of work.

The fact is that greed has exactly the same destructive consequences in business as it has elsewhere. Employees and customers and competitors who get walked over by my selfish interest in personal gain are not somehow exempted by the laws of capitalism from suffering the kind of hurt this behavior inflicts in other arenas. Nor are businesses, any more than families and civic organizations, exempt from the stresses caused by such hurt — stresses that impose huge economic costs. Nor are the end products of a business likely to be healthy for society when those products were conceived by selfishly grasping minds looking only for personal advantage. You can find a market by encouraging and serving mankind's baser impulses just as you can find a market by serving higher impulses.

This truth is lost even on some of those who make a point of defending moral and spiritual values. George Gilder has written,

> The key to the moral superiority of capitalism is that people get rich by imaginatively serving the needs of others. The new information tools allow more people than ever to perform this morally valuable capitalist role. (1996)

It is a strange sort of blind spot that allows him to leave unspoken the fact that people can also get rich by damaging the earth, scorning society, and harming others.

No, capitalism does not harness greed and turn it into good. What it harnesses is diverse individual choice and initiative, which it weaves, without central planning, into a collective tapestry. This is its great and absolutely essential virtue. But the virtue in no way obviates the fact that the tapestry, beautiful or soiled, depends on those individual choices, beautiful or soiled. When the choices are driven more and more by greed, society sickens — precisely *because* capitalism grounds society so fundamentally upon the free individual's choices.

To rejoice that capitalism unleashes the creative power of millions of individuals is quite proper; to turn around and sheepishly say, "Now that the individual has been unleashed, it turns out that it doesn't matter much what the hell he does"— well, then, why all the fuss about the creative potentials of the individual in the first place? Or have we discovered some new sort of creative power with potential for good but not for evil?

So please understand that I am not about to set off on a rant against capitalism and the market. I am talking only about how you and I, as free moral individuals, choose to *behave* in the marketplace, a consideration largely absent from respectable economic thinking.

It's true that there is no room for my topic when it comes to the theoretical elaboration of "market mechanisms." Mechanisms cannot worry about acting healthily or destructively. But we can. An economic theory and a commercial practice that fail to reckon centrally with this fact — a fact that no description of a mechanism can fully accommodate — are simply irrelevant to the world we live in.

Flights of Abstraction

The irrelevance is no eccentric conclusion of my own. Many others have remarked it. Speaking about a prominent subdiscipline of economics, Wassily Leontief, a Nobel Laureate in economics, wrote in an open letter to *Science*,

> Page after page of professional economic journals are filled with mathematical formulas leading the reader from sets of more or less plausible but entirely arbitrary assumptions to precisely stated but irrelevant theoretical conclusions.... Econometricians fit algebraic functions of all possible shapes to essentially the same sets of data without being able to advance, in any perceptible way, a systematic understanding of the structure and the operations of a real economic system. (1982)

Similarly, Herman Daly, formerly a senior economist at the World Bank, and his co-author, theologian John Cobb, Jr., opine,

> There are probably no important theoretical or policy debates that have been resolved by econometrics, which was supposed to provide the empirical test for resolving all disagreements. What happened, however, was that each side of any debate developed its own econometricians (or "econometricians" as some critics have called them). (1994, p. 32)

And, again, the economic historians Ernesto Screpanti and Stefano Zamagni refer to

> that habit, which has become almost a vice for a great deal of contemporary economic theory, of only analyzing simple and well-defined problems so as to allow the scholar to find clear "truths" without getting too mixed up in the facts. (1993, p. 36)

The flight into mathematics and other abstractions does not *necessarily* lure us into a fantasy world. Everything depends upon whether we keep firmly in mind the full-fleshed reality from which the abstractions were drawn. But the tendency, it seems, is all the other way. The corporate takeovers of the junk bond era, for example (according to a former player on Wall Street), "were often the result of a twenty-six-year-old apprentice investment banker playing with his computer rather than a move by someone who knew something about the industry" (Michael Lewis, quoted in Kuttner 1996, p. 184).

Indeed, the irrelevance of practical knowledge has been asserted explicitly, if light-heartedly, as when economist Alfred Kahn, upon becoming chairman of the Civil

Aeronautics Board in 1977, famously said he knew nothing about airplanes, which to him were just "marginal costs with wings."

Everything is much neater when you can ignore the concrete character of the world, feed well-behaved numbers into your computer models, and let the computer's satisfyingly precise algorithms grind out their conclusions. The result is an elegant and rigorous system, laid out in axioms, equations, and compelling deductions. The only problem is that it doesn't describe the real world — and certainly not a world worth striving for. Hinting at this aversion from reality, Charles Schultze once remarked,

> When you dig deep down, economists are scared to death of being sociologists. The one great thing we have going for us is the premise that individuals act rationally in trying to satisfy their preferences. (Quoted in Kuttner 1996, p. 41)

But "rationally" does not mean for economists what you and I might mean by it. "Like a mechanism" and "mathematically describable" come closer to the intent.

All You Need Is Numbers

Not many are shy about drawing the practical conclusions for business. According to Michael Jensen, a Harvard Business School professor, and Perry Fagan, a consultant, if you want to maximize the standard of living, then you will ignore the idea that "stakeholders such as employees, customers, suppliers, even whole communities … have a legitimate claim on — and a say in — the operations of a firm." You will grant only that

> the state must eliminate all externalities and managers should make all decisions so as to increase the total value of the firm. All else is chimera. (1996, p. 97)

(Externalities are, briefly, any social costs or benefits of a product or service not reflected in its market price.)

Jensen and Fagan make it clear that when they talk about increasing the "total value of the firm," they are talking about the numerical bottom line. Their "value" is a value abstracted to nothingness, pure quantity that is not the quantity of anything in particular. So a $100 profit on the sale of cocaine constitutes the same "value" in their sense as a $100 profit on the sale of penicillin. To distinguish the two would require us to consider, for example, the welfare of the cocaine and penicillin users. But, unfortunately, these are mere stakeholders. Worrying about their interests, one can only assume, would lead businesses into a quagmire. As Jensen and Fagan put it:

> Stakeholder theory … provides no guidance whatsoever for making decisions. This is, perhaps, its main danger. It turns managers loose to exercise the whims and idiosyncrasies of their own personal prejudices. More importantly, it leaves no objective way for others to measure how well or poorly they are doing.

So much for human values. They're just not measurable enough. To act on any basis other than mere whim, we need unproblematic calculation rather than significant choice. Values, in Jensen and Fagan's view, must be mathematically indifferent to starkly opposite qualities and meanings, or else they are nothing more than personal prejudices. There is a stunning sense of helplessness here in the presence of the human intention to fashion effective instruments for pursuing what we deem worthwhile.

What makes it so easy to ignore the anti-human logic of the number-crunching-is-all-you-need style of thought is the slippery nature of that little word "value." We all too easily read real value into the word when in fact the context allows only a numerical value. This slipperiness gives Jensen and Fagan's words a feeling of social substance when they say:

> Value maximization provides a simple rule to guide expenditure: spend an additional $1 on resources to improve quality for customers, for example, so long as they value the increment in quality at more than $1. Far from giving a license to ignore its various constituencies, value maximization gives firms a clear criterion for making trade-offs between them.

But for all that talk about quality and customer value, we're still in the same ballgame. What customers value is again assessed purely numerically — by the buck spent and buck earned — and therefore leaves the cocaine indistinguishable from the penicillin. It doesn't ask whether a product or service is good or bad for a neighborhood, good or bad for the customer's health, good or bad for those who produce it.

Again, please don't misunderstand me. I am not preparing a brief for legislating people's morals or outlawing selfishness. But I *am* saying that the moral qualities of our actions — in business as elsewhere — have everything to do with the kind of society we live in, for good or ill. And if this is true, how can an economics that willfully turns its face from this reality claim to tell us anything about the *welfare* of society?

The objection about legislating morals is extremely worrisome. The objector seems to assume that we have only two alternatives to consider: the free individual running wild, or else government coercion. What's missing — odd in a society so obsessed with its freedoms — is any awareness that if we've entered an era of unprecedented individual freedom, we've also entered an era of unprecedented individual responsibility for shaping society and holding it together.

We seem eager to cultivate our freedoms, and equally eager to point out the very real limitations of government in the economic realm, but not eager at all to grant that, well then, an awful lot must be up to us. And the Invisible Hand provides the perfect excuse for disavowing responsibility: the mechanisms of the market will take care of everything despite our worst intentions.

The fact is that the evolution of the free, wide-awake human being and of modern political forms have combined to require that we lay bare the elements of social health and commit ourselves to them out of our own free choice. To say that our society can only survive on this basis is the very opposite of assuming, as our objector assumed, that we can be coerced toward social responsibility. It has not yet occurred to the objector that between libertinism and straitjacket — and presupposed by the free market — there stands the free and responsible human being: free only because responsible, and responsible only because free.

So I am not trying to trash the market. In a critical sense the market is never wrong — no more than a valid equation or proposition of logic is ever wrong. It's just that, understood as a *mathematical abstraction*, the market does not give us a single certainty about human welfare — and the assumption that it does inevitably leads us away from human welfare.

Cutting Ourselves Off from Change

There's a powerful urge, within both academia and corporate offices, to believe that "in the long run" everything socially unhealthy will disappear (at least as far as is practically possible) through some sort of inherent, numerical logic of the marketplace. Of course, as Keynes once remarked, in the long run we're all dead.

But in the shorter run the decisive fact is not that we've arrived at some optimized equilibrium, but that, as growing human beings, we are *on a path*. And along that path our task is not the maximization of some pre-established, purely numerical "value," but rather the *discovery* of our values, the struggle to become worthy of them, and the exercise of creative imagination and disciplined work in socially incarnating them.

Jensen and Fagan's argument effectively disconnects business from human progress. How could a business pursuing "value maximization" in the 1950s have helped society move toward the kind of environmental responsibility that subsequently expressed itself in recycling and pollution control? How, that is, do you work toward meaningful change if your only option is to measure current proclivities and then cater to them?

You might reply, "Well, as people change and become more environmentally responsible, they will be willing to pay for 'green' goods and services, and businesses will leap forward to supply them." That is true enough. Fortunately, there *were* people willing to work toward change, and to spend their money accordingly — people whose attitude toward life and their own responsibility was not entirely shaped by the "greed is good" school of thought.

But why are these people not to be allowed within the corporation's doors? Why must they leave the most human part of themselves outside? What our lives are *about* is growing and changing; are we helpless to make the corporation an instrument of our growth and change? We *are* helpless if, within the corporation, we must abandon as a private "whim" every value that has not already found expression in a profit-maximizing price. To insist on an impermeable barrier between the individual as value-expressing ("whim-driven") consumer, on the one hand, and the individual as value-free, numbers-driven producer on the other is simply to insist on radical schizophrenia.

"But corporate America clearly *is* driving social change." Yes. That is the fearsome thing. It is driving change, but *we* are not driving *it*, except as willing servants of a largely autonomous mechanism. Hardly a surprise when economists have pushed so far toward conceiving the whole process — including our own participation in it — as a mechanism. When you achieve change by subverting conscious human choice, what you get is the play of subterranean instincts, needs, and passions — a play that easily slips into chaos.

It only needs adding that, in a sense, Jensen and Fagan are indubitably correct, for as we have seen, they began by saying, "If we wish to maximize the standard of living...." So they indicate from the start that they are interested in society only so far as it can be reduced to numbers — that is, only so far as it can be abstracted out of sight. We have no way to know what they are substantively correct about, because they've disavowed all substance. Their recipe verges on the tautological: you can best maximize the numbers by maximizing the numbers.

The standard-of-living abstraction goes hand in hand with the gross-domestic-product (GDP) abstraction, which, as many commentators have pointed out, simply measures market activity — money changing hands:

> It makes no distinction whatsoever between the desirable and the undesirable, or costs and gain. On top of that, it looks only at the portion of reality that economists choose to acknowledge — the part involved in monetary transactions. The crucial economic functions performed in the household and volunteer sectors go entirely unreckoned. As a result the GDP not only masks the breakdown of the social structure and the natural habitat upon which the economy — and life itself — ultimately depend; worse, it actually portrays such breakdown as economic gain. (Cobb, Halstead, and Rowe 1995, p. 60)

The authors of that remark go on to observe that, by the prevailing standards, "the nation's economic hero is a terminal cancer patient who is going through a costly divorce."

Beyond the Gambling Hall

The simple and ironical fact is that you cannot get from pure numbers to anything that truly "counts." If you want human values, if you want qualitative distinctions, then your theoretical constructs must retain those values and distinctions *every step of the way*. The minute you allow them to collapse into number alone, you have no way to get back from there to the qualitative world. Not, at least, without being perfectly arbitrary, for numbers are inherently indifferent to their infinite range of possible application.

More concretely: It is fine to say that your profit from the sale of apples is $1000, and your profit from the sale of oranges is $1000. But if apples are not the same as oranges, neither are profits from apples the same as profits from oranges — or profits from cocaine the same as profits from penicillin. Yet everything in the distinction is lost as soon as you say, "Total profit = $2000" and proceed to crank that figure into still other calculations, heedless of the concrete realities — the real world — from which the numbers arose.

We need to do such figure-cranking. But we don't need to forget the various significances from which the figures were abstracted, or pretend that a science based on such abstractions can tell us about the most important aspects of our economic choices.

Clearly, any economists who felt obliged to look at the real world would have to reckon with the qualities of things, and therefore would be unable to remain wholly within the neat abstractions that lend so much elegance to their theoretical habitations. There's the rub for a discipline whose self-image depends much more on mathematical rigor and scientific respectability than on the understanding of reality.

But it is not only the theoreticians who invoke a number magic whereby the maximization of particular numbers is thought to guarantee, somehow, the realization of qualitative values. Every time you and I invest our money solely for maximum return we invoke the same magic. If we invested in a specific enterprise because we believed it was doing something important for society — if that importance was what mattered to us first of all — then we would not automatically move our investments around simply on the basis of financial return. Nor would we invest in vehicles that prevented us from *choosing* which companies received our support.

Perhaps you will object, "But money isn't empty number. It represents human ingenuity and skill and hard work, with all their positive values." Exactly my point. That, at least, is how we *ought* to view money. But when we invest with a view to numerical maximization alone, we are blotting out those values. They cease to matter. Whether the skill resulting in our profits was skill in serving a particular human need or skill in undermining the welfare of others is now lost from view. We have reduced money — which has fairly been described as a kind of condensation of the human spirit — to nothingness, however precisely measured.

We would not tolerate this sort of nothingness in other domains. For example:

> If the chief of your local police department were to announce today that "activity" on the city streets had increased by 15 percent, people would not be impressed.... They would demand specifics. Exactly what increased? Tree planting or burglaries? Volunteerism or muggings? Car wrecks or neighborly acts of kindness? (Cobb, Halstead, and Rowe 1995, p. 64)

But when the chiefs of our economy report that economic activity is headed up, we quiz them no further. Instead we call our brokers.

Try to scan your radio dial without stumbling across a financial-advice program; but how often do you find such a program whose focus is the health of society rather than maximization of return? Or listen to the discussion of your company's 401K plan around the water cooler. Or just look at the kind of mania that periodically erupts in the stock markets and currency exchanges.

The message in all this is that the human being has become invisible. The market, instead of becoming the place where we conduct *our* business, has evicted us, allowing us only to pull the mechanism's various levers in hope of triggering a jackpot.

As with all gambling, there are those who are better and worse at it, but it remains a risky business. Harvard researchers examined the conventional view that trading on the (then) $2-trillion-per-day currency exchanges improved market efficiency and dampened volatility. Their conclusion?

> The big currency players trade on "noise" rather than economic fundamentals. As a result, they tend to boost market volatility rather than dampen it — and often lose money in the process. (*Business Week* 1998b).

Speaking of those same currency exchanges, *U.S. News & World Report* once suggested that they "may be the ultimate free market, a totally unregulated financial system operating twenty-four hours a day with an apparent madness balanced by fundamental economic and strategic methodologies" (1997).

But surely the ultimate free market is the market in which free human beings operate. And free human beings are those capable of exercising responsibility, of choosing their own future, of placing their own qualitative, value-laden imprint upon the world. They do not simply stick coins in slots based on the likelihood of a jackpot.

Almost everyone complains at one time or another about the perverse way numbers can run away with us, and about the one-sided concern for bottom lines. (For one of the best characterizations of the way economic abstractions distort the world, see the chapters on the "Fallacy of Misplaced Concreteness" in Daly and Cobb 1994.) That's why the *persistence* of number mysticism — the belief that certain kinds of numbers are inherently bearers of good — is so significant. The mysticism seems to grab us in a deep place, and to all appearances we are, despite our complaints, nearly helpless in its grip.

But, at the same time, we value our freedom. May we value it enough to realize that how we exercise it actually matters!

References

Business Week (1997a). Aug. 11.

Business Week (1997b). Dec. 22, p. 36.

Business Week (1998a). Jan. 26, p. 39.

Business Week (1998b). Jan. 12, p. 32.

Cobb, Clifford, Ted Halstead, and Jonathan Rowe (1995). "If the GDP Is Up, Why Is America Down?" *Atlantic Monthly* (Oct.), pp. 59–78.

Daly, Herman E. and John B. Cobb, Jr. (1994). *For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future*. Boston: Beacon Press.

Gilder, George (1996). *Forbes ASAP* (Dec. 2).

Jensen, Michael and Perry L. Fagan (1996). "Whose Firm Is It Anyway?" in *The World in 1977*, special publication of the *Economist*.

Kuttner, Robert (1996). *Everything for Sale: The Virtues and Limits of Markets*. New York: Alfred A. Knopf.

Leontief, W. A. (1982). "Academic Economists," *Science* vol. 217 (July 9), pp. 104–7.

Screpanti, Ernesto and Stefano Zamagni (1993). *An Outline of the History of Economic Thought*. Oxford: Oxford University Press.

Shenk, Joshua Wolf (1997). *U.S. News & World Report* (Oct. 20), p. 80.

U.S. News & World Report (1997). Dec. 8, p. 60.

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