

2. TOMORROW COMPOSTS TODAY

I'm using idiosyncratic terms that might become confusing outside this context of discussion. So, I'm going to CAPITALIZE them: "*Artifacts*," "**MACHINES**," "**PRODUCTS**," "**GIZMOS**." "**SPIME**" is a flat-out neologism, but central to the thesis of this book, so I'll CAPITALIZE that too. This will emphasize that I'm talking about *classes* of objects in varying object-human relationships, rather than some particular *Artifact*, **MACHINE**, **PRODUCT**, **GIZMO** or **SPIME**.

By using this special terminology, I want to emphasize the continuing interplay between objects and people. I'm describing an infrastructure of human support, irrevocably bound to and generated by the class of people who are necessary to create and maintain that infrastructure. It's mentally easier to divide humans and objects than to understand them as a comprehensive and interdependent system: people are alive, objects are inert, people can think, objects just lie there. But this taxonomical division blinds us to the ways and means by which objects do

change, and it obscures the areas of intervention where design can reshape things. Effective intervention takes place not in the human, not in the object, but in the realm of the **technosocial**.

So, by capital-*A* "*Artifacts*," I mean simple artificial objects, made by hand, used by hand, and powered by muscle. *Artifacts* are created one at a time, locally, by rules of thumb and folklore rather than through any abstract understanding of the principles of mechanics. People within an infrastructure of *Artifacts* are "Hunters and Farmers."

By "**MACHINES**" I mean complex, precisely proportioned artifacts with many integral moving parts that have tapped some non-human, non-animal power source. **MACHINES** require specialized support structures for engineering skills, distribution, and finance. People within an infrastructure of **MACHINES** are "Customers."

So what's the difference?

How does one draw the line between a **technoculture** of *Artifacts* and a **technoculture** of **MACHINES**?

I draw two lines of division. The first line is the Line of No Return. The second is the Line of Empire.

We know there has been a revolution in **technoculture** when that **technoculture** cannot voluntarily return to the previous **technocultural** condition. A sailor can become a farmer, but if the sailors from the **MACHINE** era of iron and steam return to the earlier *Artifact* era of wood and sail, millions will starve to death. The **technosociety** will

collapse, so it's no longer an option. That's the Line of No Return.

We know that this revolution has become the new status quo when even the fiercest proponents of the earlier *technoculture* cannot physically overwhelm and defeat the new one.

The new *technoculture's* physical advantages in shaping objects make it impregnable. The imperial technoculture can spew its objects and processes abroad, more or less at will.

Those who lack that productive capacity are forced into colonial or defensive postures. That's the Line of Empire.

I'm therefore inclined to date the advent of **MACHINE technoculture** to the eclipse of the Mongols in the 1500s. Before that time, an *Artifact* culture with bows and horses could blacken the earth with its rampaging hordes. After that date, the world is at the mercy of the West, as mechanization takes command.

By "**PRODUCTS**" I mean widely distributed, commercially available objects, anonymously and uniformly manufactured in massive quantities, using a planned division of labor, rapid, non-artisanal, assembly-line techniques, operating over continental economies of scale, and supported by highly reliable transportation, finance and information systems. People within an infrastructure of **PRODUCTS** are "Consumers."

I would date the advent of **PRODUCT technoculture** to the period around World War One.

"**GIZMOS**" are highly unstable, user-alterable, baroquely multifeatured objects, commonly programmable, with a brief lifespan. **GIZMOS** offer functionality so plentiful that it is cheaper to import features into the object than it is to simplify it. **GIZMOS** are commonly linked to network service providers; they are not stand-alone objects but interfaces. People within an infrastructure of **GIZMOS** are "End-Users."

Unlike *Artifacts*, **MACHINES**, and **PRODUCTS**, **GIZMOS** have enough functionality to actively nag people. Their deployment demands extensive, sustained interaction: upgrades, grooming, plug-ins, plug-outs, unsought messages, security threats, and so forth.

The **GIZMO** epoch begins in 1989.

"**SPIMES**" are manufactured objects whose informational support is so overwhelmingly extensive and rich that they are regarded as material instantiations of an immaterial system. **SPIMES** begin and end as data. They are designed on screens, fabricated by digital means, and precisely tracked through space and time throughout their earthly sojourn.

SPIMES are sustainable, enhanceable, uniquely identifiable, and made of substances that can and will be folded back into the production stream of future **SPIMES**. Eminently data-mineable, **SPIMES** are the protagonists of an historical process.

People within an infrastructure of **SPIMES** are "Wranglers."

I would date the dawn of SPIMES to 2004, when the United States Department of Defense suddenly demanded that its thousands of suppliers attach Radio Frequency ID tags, or “arphids,” to military supplies. If this innovation turns out to be of genuine military advantage, and if it also spreads widely in commercial inventory systems, then a major transition will likely be at hand.

SPIMES are coming sooner or later, for SPIMES are here in primitive forms already. We can’t yet know if this is an important development, or just a visionary notion. The technical potential seems quite large, but how much design energy will these opportunities attract? Who will dare to use these potentials as a means of technosocial intervention? Is there a Line of No Return, and a Line of Empire? And if so, where are those lines?

When will we realize that we need these structures in order to live—that we can’t surrender their advantages without awful consequence? And when will politics infested with SPIMES realize that they can lord it over those who refuse or fail to adapt them?

If I had to guess, I’d say 30 years. In 30 years, things properly understood as SPIMES will be all around us. Mind you, this is by no means an entirely happy prospect. It’s important to explicitly acknowledge the downsides of any technological transformation—to “think of the underside first,” to think in a precautionary way. In engaging with a technology so entirely friendly toward surveillance, spying, privacy invasion and ruthless technical intrusion

on previously unsoiled social spaces, we are playing with fire. Nothing new there—fire is two million years old. It helps to learn about fire and its remarkable affordances. Not a lot is to be gained by simply flinging lit matches.

Design thinking and design action should be the proper antidotes to fatalistic handwringing when it comes to technology’s grim externalities and potentials for deliberate abuse. This book is for designers who want to be active agents in a **technosocial** world. I can’t make you into a moral angel (because I’m not one myself and have little interest in being one), but I might help you understand that the future can be yours to make.

Of course that’s not the end of the story. The story, if it’s successful, fails to end because we have created SPIMES and can manage them successfully. By handling challenges properly, we’ve enjoyed life without spoiling it for our descendants; as a culture, we’ve obtained more future. That would be the victory condition and the point of writing books of this kind.

I’ll be spending most of the rest of this little book exploring what a “SPIME” might be, or become, and how people will interact with SPIMES. There are no such things as true SPIMES yet—these are still speculative, imaginary concepts. I will try to make the case that SPIMES are genuine prospects for genuine objects in the future, and worthy of designers’ attention. I hope to persuade you that clever young people had better get used to these ideas.

Tomorrow composts today.

In other words, **technocultures** do not abolish one another in clean or comprehensive ways. Instead, new capacities are layered onto older ones. The older **technosocial** order gradually loses its clarity, crumbles, and melts away under the accumulating weight of the new.

The coming advent of **SPIMES** will not “abolish” the dominant **technoculture** we see today, which is the **GIZMO**. *Artifacts*, **PRODUCTS** and **MACHINES** are still plentiful and flourish in today’s **GIZMO** world—but, influenced by the pressure from on high, they do tend to take on a pervasive flavor of **GIZMO**. Let’s see how.

3. Old Wine in New Bottles

With a parable of old wine in new bottles, I can illustrate that some objects are born **GIZMO**, while others have **GIZMO**logy thrust upon them. Let’s get very immediate, practical and hands-on with the topic: let me invite you to sit down and have a glass of wine with me.

This wine bottle we have at hand here would seem to be a pretty simple object. It is mostly made of a single, ancient substance—glass—and it has no moving parts (if you don’t count the discarded cork). Wine bottles are ancient, pre-industrial, even pre-historic. When I turn over this wine bottle, pour it and drink the contents, I’m experiencing the same somatic shock as Socrates.

But Socrates (who was a Hunter-Farmer from a world of *Artifacts*) was drinking local wine from a Greek vineyard in a handmade clay krater. Whereas I am an **End-User** in a **technosociety** dominated by **GIZMOS**. So I am drinking from a machine-labeled, mass-produced bottle of industrial glass, with a barcode and legalistic health warnings, which exists in many hundreds of identical copies, and

was shipped from Italy to California and offered for sale in a vast supermarket.

And yes, this bottle of wine has a Webpage. This is how it leans forward into the future world of the *SPIME*.

SANGIOVESE

(san-joh-VEH-seh)

“From the Emilia-Romagna area comes Sangiovese, an easy to drink dry wine with a straightforward, spicy-fruity flavor. Enjoy this wine with a wide variety of foods including pasta with light tomato sauce, ribs, chicken, veal, pork, beef, cold meats and cold salads.”

“Winemaker notes (requires Adobe Acrobat Reader)

“Here’s how to say it

“Host a tasting

“Classics

Soave | Valpolicella | Bardolino

“Varietals

Pinot Grigio | Merlot | Sangiovese | Chardonnay |

Cabernet Sauvignon

“Signature Series

Arcale | Le Poiane | Tufaie | Colforte

“Alta Gamma

Creso | Amarone”

I had to use a laptop computer to access that data, but since I am an End-User of *GIZMOS*, I am rarely without a laptop computer. That was an affectation earlier in my lifespan, but I have crossed the Line of No Return with my laptop *GIZMO* here; I can no longer earn a living without it.

So this Sangiovese may be a “classic” wine from the Mediterranean basin, but this bottle is no longer a classic *Artifact*. It is *GIZMO*-ized.

Consider the wide variety of ways in which I am being invited to interact with this wine bottle. I don’t merely drink the contents. I *could* just drink it—but if I lift my eyes just a little—(it took me 35 seconds, on wireless broadband, using the very machine on which I am writing this book)—then I am invited to learn how to pronounce a foreign language, how to set up a social gathering with my friends, how the wine is made (that might require me to download some software, mind you), and how to expand my oenophilic knowledge of grape varieties.

This is *no accident*. There is nothing frivolous or extraneous about this sudden explosion of informational intimacy between myself and a bottle of wine.

Every one of these transitions—*Artifact* to *MACHINE PRODUCT* to *GIZMO*—involves an expansion of information. It enables a deeper, more intimate, more multiplex interaction between humans and objects.

In an *Artifact technoculture*, literacy is a frill. Scribes are hard to train, few in number and expensive to sup-

port. The Hunter and Farmer lives close to the soil in a life bound to the rhythm of the seasons.

In a **MACHINE technoculture**, I am a Customer. I have a medium of exchange that commands a gamut of objects, plus banks, roads, ships, commercial records, engineering manuals, treatises on architecture, and a host of technical specialists engaged in craft. I'm literate and numerate, for the lack of such informational skills would put me at severe disadvantage.

In a **PRODUCT technoculture**, I'm a Consumer. Goods are available at commodity prices in a literally unknowable profusion. **PRODUCTS** are so radiantly specialized that they can be aimed with precision at defined consumer demographics: high-end, mid-list, down-market. I'm barked at by incessant advertising—unsought information flows—and burdened with mail-order catalogs. **PRODUCTS** may dare to have Some Assembly Required, but if so, I'll complain about that—for I am a Consumer, and want to be catered to. I exist under pressure of catering. To be catered to is my very life: I'm a social security number, a driver's license, a voter registration card, a stock portfolio and a retirement plan. Withdraw those structures, and I don't live.

In a **GIZMO technoculture**, my products are festooned with baroque amounts of functionality and tied deeply into sophisticated, unstable networks of service provision. As an End-User in a destabilized high tech society, I take great comfort in useless functions; they may well be

impractical, but they give me a sense of dignity, like the silk ribbons and gold braid on a Renaissance courtier.

A device that is simple and easy to understand is a mere commodity; in my **GIZMO** society, mere **MACHINES** and **PRODUCTS** offer a poor return on investment. These crude devices lack the dams and weirs and tidal pools of patents and intellectual property; they offer no arena for bravura displays of my technical mastery. I rather prefer my devices not to work quite properly. I am balanced on the edge of complexity and utter chaos.

GIZMO wine hasn't ceased to be wine. Wine fanciers can take comfort in wine's long and successful historical record. However, this bottle with the Web site on its label isn't *Artifact* wine. The grapes were cultivated with fossil-fueled tractors, but this isn't **MACHINE** wine, either. It was shipped across the planet, tax-stamped and offered for sale in a supermarket, but it isn't **PRODUCT** wine.

This is **GIZMO** wine. It is offering me more functionality than I will ever be able to explore. This wine bottle aims to *educate me*—it is luring me to become more knowledgeable about the people and processes that made the bottle and its contents. It wants me to recruit me to become an unpaid promotional agent, a wine critic, an opinion maker—it wants me to throw wine-tasting parties and tell all my friends about my purchase. It is acculturating me to **GIZMO technosociety**.

Like all **GIZMOS**, its lifespan is brief—it doesn't take long to drink a bottle of wine. An individual bottle of wine,

my entree into this wondrously elaborate process, costs a modest sum. The cost of the information jamboree that accompanies it has been amortized across a huge global base of willing consumers of flavored alcohol.

This **GIZMO** aspect of the wine bottle, all this Web page busy-ness and the bar code and the health warnings—these are not fripperies. They were all designed with deliberate care. Some were legislated. They are permanent changes in the relation between humans and wine bottles. Wine merchants will not retreat from this new digitized complexity with the purchaser because they have already installed that complexity throughout the rest of their production system and supply chain: from Italian agribusiness, through European oversight and standards, to distribution centers and retail outlets—none of them run blind any more, they are all linked through electronic commerce.

So why should I, the buyer, be left out? I *can't* be left out. Every producer and seller of **GIZMOS** is a buyer of somebody else's **GIZMOS**—the older roles of buyer, seller, producer, developer are all melted down in the informational stew. It costs very little to drag me into the digital mire.

What does this mean in practice—"dragged into the digital mire"?

It means taking my money of course, but money is often a metric proxy for two other, vaguer phenomena: **cognitive load** and **opportunity costs**.

To participate in the **GIZMOS** world, I need to think about things, talk about things, pay attention to things, be entertained by things... I pay a price for that in personal brainpower. That price is my own **cognitive load**. In a **GIZMO** world, I can learn a great deal about wine if I like, and that may even be cunningly arranged for me as a seductive, congenial, infotainment process—but if I do that, then I'll have to think less, or more hastily, or more sketchily, about some other things.

So I'll have to choose options, or at least navigate the risks. For instance: will I stop to read all the shrink-wrapped complexities of my software's End-User License Agreement? Or will I just hastily click **AGREE** and hope I'm too small-time to get sued?

Along with thinking less comes doing less: "**opportunity cost**". To make room in my life for this **GIZMO** jamboree, I have to sacrifice something that I'm already doing. There are only so many hours in the day, so there will be something I can't and don't do much any more. I pay a price in opportunity—maybe just the opportunity to sit still, like Socrates, unperturbed, in an olive grove, with my own unperturbed thoughts.

When it comes to objects, designers tend to be lavishly generous with their own **cognitive load** and **opportunity cost**. Thinking about objects is a designer's profession and avocation, and the chance to do more of that that is considered professional opportunity. But for people who are already fully booked mentally—the vast majority of

the human race who aren't designers—those demands can be crippling.

Everyone can't be a designer

—any more than everyone can be a mayor or a Senator.

There's not enough time in the world for people to sacrifice infinite amounts of opportunity and cognition. This means that, in a **SPIME** world, designers must design, not just for objects or for people, but for the **technosocial** interactions that unite people and objects: designing for **opportunity costs** and **cognitive load**. These resources deserve special design attention because these are the resources that are now in scarcity.

In a world of **SPIME**, the growing problems of attention load and **opportunity costs** have been finessed. Most probably, they've been deputized to powerful information machinery. These processes depend, as search engines do, on social software which can track human desire and interest.

What's basically missing in the future transition from **GIZMO** to **SPIME** are new, inventive, interactive machineries of **representative design**. As with representative government, these would be transparent and accountable infrastructures that could drag and **Wrangle** me into

the hurly-burly world of design issues without also crushing me under the load of micro-management.

Can this be done? I think it can, if designers make it happen. If done properly, it will be almost beneath notice. People always do useful, supportive work for a **technosocial** system, whether they want to or not, whether they know it or not. Hopefully, they can do it without the loss of every precious instant in their life spans.

We interact with infrastructure differently in a world with **representative design**. In particular, with enough informational power, the “invisible hand of the market” becomes visible. The hand of the market was called “invisible” because Adam Smith, an eighteenth-century economist, had very few ways to measure it. Adam Smith lacked metrics. Metrics make things visible. In a **SPIME technosociety**, most everything has metrics. Human beings and their objects are awash in metrics. There are many ways to make these metrics impinge on my behavior—by making things cost more or less, of course, but also mostly by making their workings more obvious, giving me a stake, and putting them closer to my fingertips.

When the entire industrial process is made explicit, when the metrics count for more than the object they measure, then **GIZMO** become **SPIMES**.

The Product-Consumer technosociety had a rather simple, linear set of relationships between Consumers and manufacturers. That simpler linearity was composed and subsumed by the **GIZMO technosociety**. As an End-User today, even a wine bottle will deliberately lure and reward me for becoming a stakeholder.

In a **SPIME technosociety**, we've advanced into yet another situation, where the core activities involve negotiations over the nature of my stake holding. This activity I call "Wrangling." A **SPIME** technosociety will be composed of "Wranglers." Effective design helps Wranglers to Wrangle better.

6. A SYNCHRONIC SOCIETY

A SYNCHRONIC SOCIETY synchronizes multiple histories. In a SYNCHRONIC SOCIETY, every object worthy of human or machine consideration generates a small history. These histories are not dusty archives locked away on ink and paper. They are informational resources, manipulable in real time.

A SYNCHRONIC SOCIETY generates trillions of catalogable, searchable, trackable trajectories: patterns of design, manufacturing, distribution and recycling that are maintained in fine-grained detail. These are the microhistories of people with objects: they are the records of made things in their transition from raw material, through usability, to evanescence, and back again to raw material. These informational microhistories are subject to well-nigh endless exploitation.

Exploiting this potential successfully is a major opportunity and challenge for tomorrow's design. It is something never done before, a place where the shapers

of tomorrow's things can develop possibilities unavailable to any previous generation. I call it a metahistorical issue, because that's the best way to summarize it—but when it comes to actually instantiating this trend in real things, real material goods and real immaterial relationships, it will always be a design issue.

Historians won't do it. Designers will. In particular, 21st century designers will do it, because it was not just impossible, but unthinkable, to earlier designers. It is a realm of design opportunity untouched by all predecessors.

This vast digital bulk of trillions of histories is burdensome and even hazardous in some ways. It requires huge resources in bandwidth, processing speed and storage. There is every reason to think (based on firm 50 year trends) that those resources will exist. Since they will also allow new forms of behavior and new relationships between human beings, the environment, and their objects, they are intensely valuable.

Sustainability is never a static goal. It can only be a process. Previous ideas about "sustainability" are not and will never be tenable. *A small, beautiful, modest, hand-crafted society, living in harmony with its eco-region, relentlessly parsimonious in its use of energy and resources, can't learn enough about itself to survive.* In its bucolic quietude, it may appear timeless, but the clock is ticking for it as it does for all societies. It can avoid many conventional threats by abjuring large-scale, clumsy technologies, but modesty doesn't make one invisible. That

society isn't *keeping track*—in its loathing for industrialism, it forfeits far too much command-and-control over its physical circumstances. *Its bliss is ignorance.*

A truly sustainable society has to be sustainable enough to prevail against the unforeseen. The unforeseen, by definition, can't be outplanned. This implies that serendipity is necessary. We can't know what we need to know; so there need to be large stores of unplanned knowledge.

There is the known, the unknown known, and the unknown unknown. When the unknown unknown comes lurching to town, you have to learn about that comprehensively and at great speed. Generating new knowledge is very good, but in a world with superb archives, accessing knowledge that you didn't know you possessed is both faster and more reliable than discovering it.

This is the new form of knowledge at which a SPIME world excels. It is not doctrine, but the school of experience—not reasoning out a solution a priori, but making a great many small mistakes fast, and then *keeping a record of all of them*. This is where the 21st century has a profound oracular advantage over the intellectual experience of all previous centuries—it can simply *search the living daylight*s out of vast datamines of experience, at the press of a button.

The ability to make many small mistakes in a hurry is a vital accomplishment for any society that intends to be sustainable. It's not necessary that every experience be

sensible, logical or even sane—but it’s vitally important to register, catalog and data-mine the errors.

In the world of design, the term for this is “rapid prototyping.” Rapid prototyping is a form of brainstorming with materials. It’s not simply a faster way to plunge through older methods of production, but a novel way to manage design and production. By previous standards, it looks as if it is profligate, that it “throws a lot away”—but with better data retention, “mistakes” become a source of wealth. Rapid prototyping seen in depth is an “exhaustion of the phase space of the problem”—it isn’t reasonable, thrifty or rational, but it has the brutal potency of a chess-playing computer.

Designers brainstorm. It’s not reasonable to brainstorm. A brainstorm works anyway, because the point of brainstorming is escaping “reasonable” constraints. A brainstorming session fails if remains too reasonable. Brainstorms are about generating fresh, effective ideas from outside some particular paradigm.

As designer **Henry Dreyfuss** used to say, a brainstorming session will produce three good ideas at the cost of 97 bad ones—a cost, said **Dreyfuss**, that had to be borne as the price of the three good ideas. What is intellectually different about the 21st century is its improved mechanical ability to winnow out the three good ones among the 97 bad ones—and to keep the 97 bad ones around so that we needn’t do them again.

A society with **SPIMES** has design capacities closed to societies without them. Since they are so well documented, every **SPIME** is a lab experiment of sorts. In older days, if an object was radically re-purposed by some eccentric, this data would be ignored or lost. A **SYNCHRONIC SOCIETY** is in a splendid position, though, to adopt and refine these innovations. A mass produced object can be compared to a grazing cow, while the same basic object, when **SPIMED**, becomes a scattered horde of ants. Each ant pursues a different trajectory and therefore covers a broader spectrum of **technosocial** possibility.

A world with **SPIMES**, in other words, can make and correct missteps faster than earlier societies, and with less permanent damage. **SPIMES** are a digital mob of tiny, low-cost advantages and mistakes. A **SYNCHRONIC SOCIETY** can study history in more depth—farther into the past, farther into the future—but also operates in more breadth. Instead of researching new solutions from a standing start, it has a new capacity to digitally search out solutions within the existing data field: every **SPIMED** object has generated a little puddle of experience.

A **SYNCHRONIC SOCIETY** has a temporalistic sensibility rather than a materialistic one. It’s not that material goods are unimportant—materials are critical—but material objects themselves are known to be temporary, obsolescing at a slower or faster pace. A **SYNCHRONIC**

SOCIETY conceives of its objects, not as objects qua objects, but as instantiations, as search-hits in a universe of possible objects. Embedded in a monitored space and time and wrapped in a haze of process, no object stands alone; it is not a static thing, but a shaping-thing. Thanks to improved capacities of instrumentation, things are no longer perceived as static—they move along a clocked trajectory from nonexistence to post-existence.

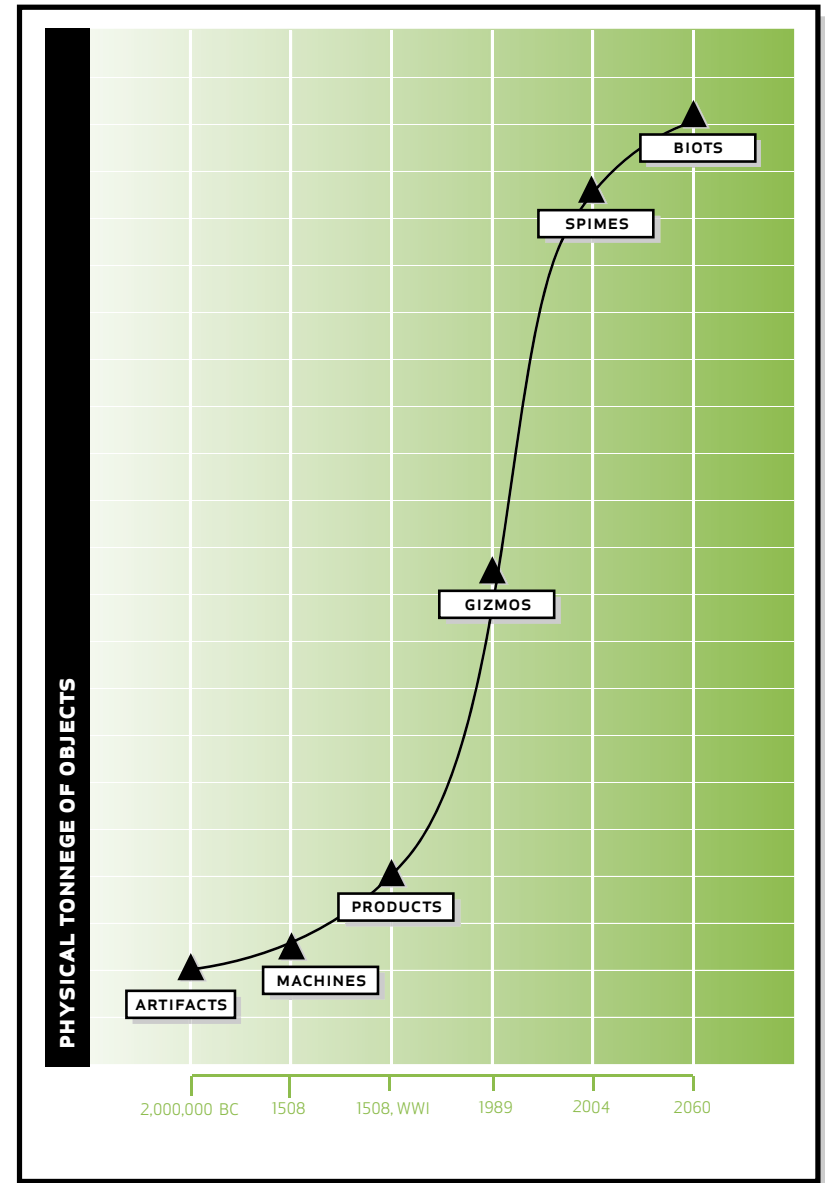
How do we learn to think in a SYNCHRONIC way? Through using **MACHINES**. Genuinely radical changes in the human conception of time are not caused by philosophy, but by instrumentation. The most radical changes in our temporal outlook come from technological devices, tools of temporal perception: clocks, telescopes, radio-carbon daters, spectrometers. It was through these instruments that we learned that the universe is 13.7 billion years old, that the planet is 4.45 billion years old, that our species is some 200,000 years old. Compared to these mechanically assisted vistas, all previous human notions of time are parochial.

Then there are sensors, which do not merely measure qualities, but measure changes. Sensors that can measure and record. Sensors for changes in temperature. Sensors for changes in moisture. Sensors for changes in light. Sensors for changes in magnetic fields. Sensors for changes in chemical exposure. Sensors for the changes

FIGURE 2

The Human Engagement with Objects

*Artifacts, **MACHINES**, **PRODUCTS**, **SPIMES**, **BIOTS***



wrought by microbes and pathogens. Sensors for changes in chemical exposure. And clocks, cheap, accurate, everywhere, measuring changes in time.

A SYNCHRONIC SOCIETY is fascinated with ideas about progress and advancement. But it doesn't want society to move in lockstep unison into some prescribed direction; it wants to generate the potential to move in effective response to temporal developments. A civilization cannot outguess all eventualities, so it has to cultivate capacity, agility, experience, and memory.

A SYNCHRONIC SOCIETY would view human beings as process: a process of self-actualization, based not on what you are, but what you are becoming.

The value judgments of a SYNCHRONIC SOCIETY are temporalistic. "Do we gain more time by doing this, or less time?" Does this so-called "advancement" increase, or decrease, the capacity for future acts?

Consuming irreplaceable resources, no matter how sophisticated the method, cannot mean "progress," judged by a SYNCHRONIC perspective. Because to do so is erasing many future possibilities; it is restricting the range of future experience.

Constructing hydrogen bombs was once a highly sophisticated technical effort. Huge bombs might even be politically or technically necessary in the midst of some gigantic, all-or-nothing crisis (say, huge bombs for use against an asteroid in imminent danger of smashing the Earth). From a SYNCHRONIC viewpoint, though,

creating and storing world-smashing super weapons can't possibly be judged an "advancement." It's a blatant, future-wrecking hazard, no matter how clever it is, or how difficult or costly to do. The use of hydrogen bombs forecloses practically every other act of future development.

A SYNCHRONIC SOCIETY sets high value on the human engagement with TIME. We human beings are time-bound entities. So are all our creations. We cannot think, analyze, measure, prove, disprove, hypothesize, argue—love, suffer, exult, despair, or experience a wordless rapture of mystical faith—without a flow of TIME through our flesh. So we are not objects, but processes. Our names are not nouns, but verbs. Our existence does not precede time or postdate time—we personify TIME.

If we accept this philosophizing, certain implications follow. When someone's lifespan is curtailed, this forecloses that person's future experience. So, living a long time in full awareness of one's circumstances is a praiseworthy act. Blowing yourself up and killing those around you in pursuit of a supposed eternal reward must be close to the apex of wickedness.

Temporalistic thinking is a moral worldview. A society with declining life expectancy is clearly retrogressive. A society with a high infant mortality rate is maladjusted. A society riddled by plagues, diseases, resistant and emergent microbes, and environmental illnesses is decadent. Societies facing these blatant danger signals need to frankly come to terms with their decline. People of good

will in such a society should frankly recognize and publicize its failings, and take appropriate remedial steps.

Or so one imagines a SYNCHRONIC SOCIETY moralizing.

Of course, this is speculative. Even if we did effectively think and act in such a way, it's unlikely that we would ever use such a cumbersome label as SYNCHRONIC for our sensibility. But we could act and think that way if we wanted to do so; there's nothing much stopping us from doing it right now.

I suspect that we are quite close to thinking this way, and what I am describing here is a clumsy, old-fashioned prognostication for a way of life and thought that will someday be so common as to be banal. A sensibility like this sounds rather exotic in the TIME in which I write this. It would make a great deal more sense, however, in a future society with a burning awareness of environmental crisis, where the majority of the population is well-seasoned, elderly, adept with media and surrounded by advanced computation. That is a very plausible description of the mid-21st century cultural scene. They would read a book like this and laugh indulgently—but they would read many other books of our period, and wonder in shock what on earth those people had been thinking.

We're in trouble as a culture, because we lack firm ideas of where we are in time and what we might do to ensure ourselves a future. We're also in trouble for technical and practical reasons: because we design, build and use dysfunctional hardware.

12. AN INTERNET OF THINGS

Given an **INTERNET OF THINGS**, you can read your arphids anywhere. Via Net, via cell phone, via satellite—it would seem that the sky's the limit.

But the sky's not the limit at all—for an Internet of Things, the sky is the *metric*. Global positioning satellites provide a splendid source of measurement for a space-time Spiming world.

Your arphid monitors are hooked into the satellite based Global Positioning System. Then your network become a mobile system of interlinked objects that are traceable across the planet's surface, from outer space, with one-meter accuracy, around the clock, from pole to pole.

A Global Positioning System is a literal world-beater—although satellite coverage breaks up whenever you move under a roof. A Local Positioning System, indoors, is handier yet. Global Positioning works by combining and analyzing signals from several cooperating satellites, up in space. The same thing can work on a local scale, inside a house.

If you have multiple monitors combined in a network, that means you can add arphid radio signals together, and triangulate them. It's an indoor, radar air-traffic control system for objects.

Real air traffic control systems are grim, complex bureaucracies, heavy with fail-safes. Who can make objects that integrate elegantly and dependably within an **INTERNET OF THINGS**? Who can make that system as relatively simple and inviting as, say, the Internet's Web browsers and Weblogs? It's a design space rife with profound opportunity.

You, a human being, don't want the cognitive burden of knowing what your host of objects is doing all the time. What you want is the executive briefing.

Management has its perks as well as its burdens. The drawback of becoming a Wrangler is a ceaseless struggle through changing fields of data and relationships. The benefit is that many previously knotty problems simply vaporize, they become trivial.

The primary advantage of an **INTERNET OF THINGS** is that I no longer inventory my possessions inside my own head. They're inventoried through an automagical inventory voodoo, work done far beneath my notice by a host of machines. I no longer bother to remember where I put things. Or where I found them. Or how much they cost. And so forth. I just ask. Then I am told with instant real-time accuracy.

I have an **INTERNET OF THINGS** with a search engine. So I no longer hunt anxiously for my missing shoes in the morning. I just Google them. As long as machines can crunch the complexities, their interfaces make my relationship to objects feel much simpler and more immediate.

I am at ease in materiality in a way that people never were before. Although I live in a much cleaner way than my forebears did, I am not achingly burdened by glum moral guilt about my acts of consumption. That's no longer a burdensome matter requiring constant conscientious decision-making on my own part. Instead, it's been designed into the metrics of the production stream. Whenever I shop, I shop with a wand in my hand. It would never occur to me to shop without a filter and an interface. And someone built that for me, it was designed—as a Wrangler, I need an interface for capitalism itself. In the old days, the best term for an idea like that was probably a “lifestyle magazine.” Those toney, glossy little empires were the native haunts of the design profession. But those things were made of paper. They just sat there on a table. They couldn't *do anything*.

But now that design decisions are at my fingertips instead of stuck on paper, I can do a lot.