10.

MEET THE SPIME

Scenario: You first encounter the SPIME while searching on a Web site, as a virtual image. This image is likely a glamorous publicity photo, but it is also deep-linked to the genuine, three-dimensional computer-designed engineering specifications of the object—engineering tolerances, material specifications, and so forth.

Until you express your desire for this object, it does not exist. You buy a SPIME with a credit card, which is to say, you legally guarantee that you want it. It therefore comes to be. Your account information is embedded in that transaction. The object is automatically integrated into your SPIME management inventory system. After the purchase, manufacture, and delivery of your SPIME, a link is established through customer relations management software, involving you in the further development of this object. This link, at a minimum, includes the full list of SPIME ingredients (basically, the object's material and energy flows), its unique ID code, its history of ownership, geographical tracking hardware and software to establish its position in space and time, various handy recipes for post-purchase customization, a public site

for interaction and live views of the production change, and bluebook value. The SPIME is able to update itself in your database, and to inform you of required service calls, with appropriate links to service centers.

At the end of its lifespan the SPIME is deactivated, removed from your presence by specialists, entirely disassembled, and folded back into the manufacturing stream. The data it generated remains available for historical analysis by a wide variety of interested parties. That variety and those levels of interest are what you, a Spime Wrangler, consider of genuinely crucial interest. The SPIME is a set of relationships first and always, and an object now and then.

The key to the SPIME is identity. A SPIME is, by definition, the protagonist of a documented process. It is an historical entity with an accessible, precise trajectory through space and time.

A SPIME must therefore be a thing with a name. No name, no SPIME. This presents a serious semantic challenge. The labels that we attach to objects are never identical with the phenomenon itself; the map cannot be the territory. There is a frail, multiplex relationship between labels and materiality.

For instance, when I described that "bottle of wine" a while ago, everybody presumably knew that I meant a particular, coherent object. Yet that "bottle of wine" was a momentary congelation of material and energy flows. It has now become nameless, but it remains a process, still

underway and mostly unknowable to me. That "bottle of wine" was once sunlight on Italian earth, lakes of grape juice, yeast in fermentation tanks, wood pulp for the label, colored inks, cork from Spain or maybe Portugal, plus a Californian grocery chain reacting to consumer trends and stocking a brand with some shelf appeal. Then I found it, bought it and consumed it. It continued as a dissociated flow of recyclable glass, consumed paper, hydrating fluids and a narcotic in my bloodstream, long since metabolized.

When I bought that "bottle of wine" I was also financing a situation that names and defines those complex flows as a "bottle of wine"—a technosocial set-up that allows me to interact with that object as a consumer item first and only, blindly uninvolved with its extensive history as pre-bottle and post-bottle. Buying and drinking it was my own business, and the rest of it is none of my business. How much of that business ought to be mine? Well—enough for me to have some reasonable security in the thought that my more general business won't come to a sudden, ugly, unsustainable end.

In an age of *Gizmos*, I'm living off the land with most of my objects made by myself or my immediate kin. I know a lot about what I have, but I'm basically poor and ignorant.

In an age of *Products*, I can engage in markets. But I'm just a gray flannel man in the crowd: I have to shut up and settle for what comes out of the assembly line.

In an age of **GIZMOS**, I'm an unpaid developer. I'm eye-balls. I'm keypunches, I'm Web site hits.

In an age of SPIMES, the object is no longer an object, but an instantiation. My consumption patterns are worth so much that they underwrite my acts of consumption. I can get *Products* in profusion, but I've been kicked upstairs into management. I don't worry much about having things. I worry plenty about relating to them.

How? Mostly through naming. Naming enables the generation of pattern. Naming enables measurement.

In my relationship to objects, I have "advanced to the stage of science."

"When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowl-edge, but you have scarcely, in your thoughts, advanced to the stage of science."

So said Lord Kelvin. In an age of SPIMES, Lord Kelvin is not talking about physics. He's talking about the economy.

A MULTIPLEX, GLOBAL BUREAUCRACY
ALREADY EXISTS WHOSE PURPOSE
IS ATTACHING IDENTITIES TO OBJECTS. THAT IS
A NONPROFIT, QUASI-AUTONOMOUS

NON-GOVERNMENTAL ORGANIZATION KNOWN
AS THE UNIFORM CODE COUNCIL, INC.®
ALONG WITH ITS EUROPEAN TWIN, THE EAN
INTERNATIONAL. IT RUNS AN IDENTITY
REGIME THAT IS KNOWN AS THE GLOBAL EAN-UCC
SYSTEM – BETTER KNOWN TO THE PUBLIC
AT LARGE AS BARCODING.

The scope and scale of this enterprise is colossal, Barcoding has permeated commerce.

Having discarded my Italian wine bottle back in Tarzana, California, I'm currently sitting at a kitchen table in Belgrade, Serbia, where I gamely continue to labor on this book. There are twenty-three household objects sitting on this Balkan kitchen table. They are the common, quotidian objects that sit on this kitchen table most every day. There is nothing special about them, except that I just decided to subject them to an inventory.

Five of these everyday objects have barcodes, either adhering to them with gummed paper, or worked right into their surface finish. These five items would be two pens, the woolly winter hat, the packet of paper tissues, and the wine-bottle's local equivalent (which is a bottle of "Vuk Stefanovic Karadzic" brand Serbian plum brandy).

The phone handset on this table has its coding in another room, attached to the parent phone cradle. The phone cradle features two barcodes, a model number, and an ID number from the USA's regulatory Federal Communications

Commission, even though this phone is a machine in Serbia that has never been anywhere near America.

The TV remote control on the table is an extension of its extensively coded client, the television.

The stereo headset once had a barcode on its discarded packaging.

If you add the computer (which is no longer the laptop I was using in California, but an older, local model gamely crunching on a ported version of the same text), then we are immersed in identity coding. And this isn't the Los Angeles basin here, that sophisticated thicket of metropolitan consumerism—this is Belgrade, a city that is edgier in every sense.

I can also go trolling for kitchen-table objects that have Web sites embossed on them, inviting some End-User digital interaction. Then I get the plastic clamp, the brandy bottle, a pencil, and the blank compact disk (which sports five Web sites on its packaging alone).

Five of these objects: the saltshaker, the peppershaker, their stamped metal tray, and the wooden pencil holder—are Balkan heirlooms.

The coasters are too cheap to barcode.

The plastic cigarette lighter is so oddly and grimly anonymous that I'm pretty sure it was built in some Chinese basement and then filled with smuggled butane.

What we see in this household microcosm is a slow multi-decade, S-curve waves toward increased identity for objects.

Look at the variety here, as tomorrow composts today.
We have:

I.

Primeval *Gadgets*, handmade;

II.

Mass-produced *gadgets* from the local Communist
era, pre-dating the local advent of identity coding;

III.

Trivial *gadgets* too cheap or small to code;

IV.

Coded *gadgets*, including some strays whose codes
fell off or were dumped when they left the supply chain;

V.

Two **GIZMOS** that are the remote adjunct interfaces
for a larger, fully-coded communication system;

VI.

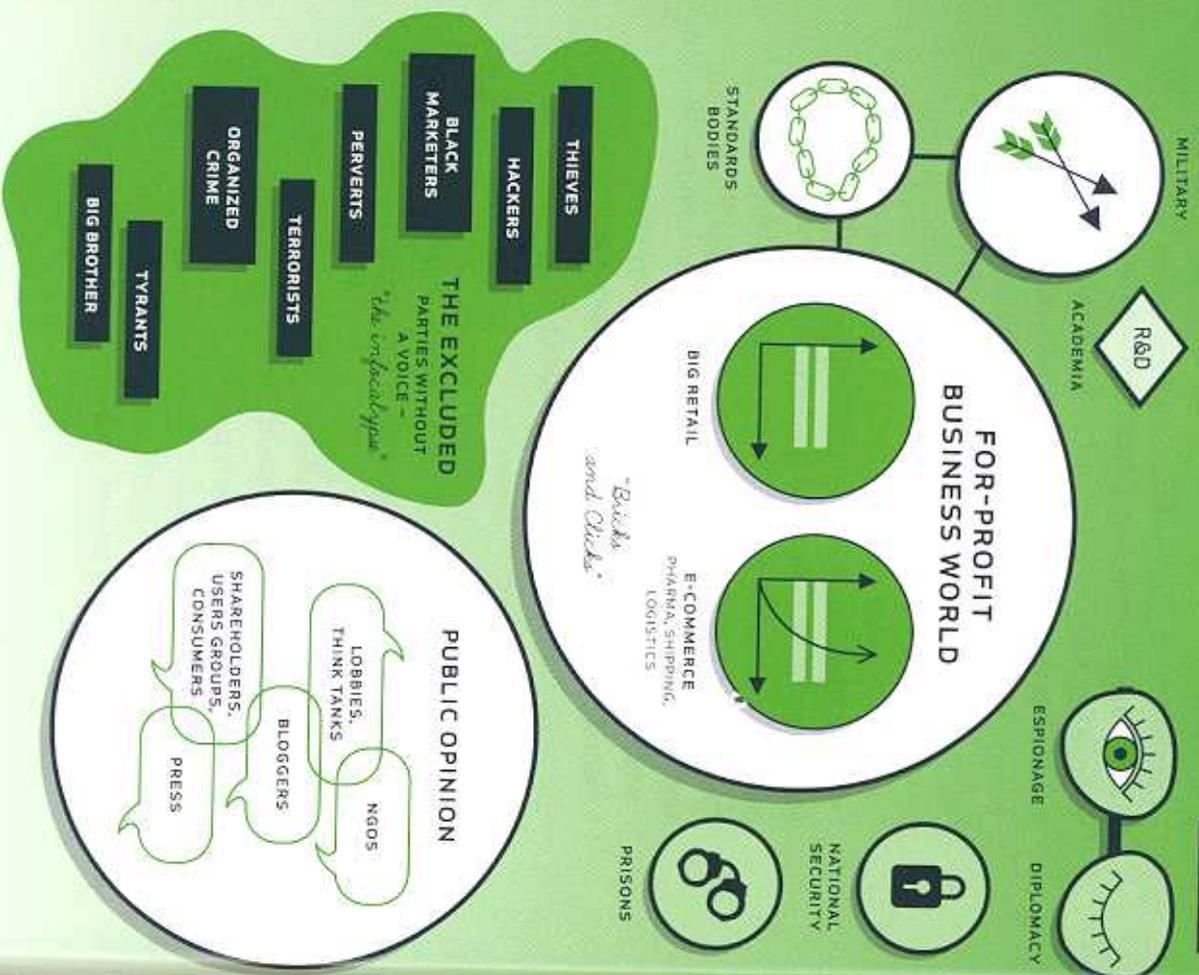Coded *gadgets* that also invite interaction
with a Web site;

A subset of Web site-only, non-barcoded *gadgets*;

VII.

An awesomely complicated personal-computer **GIZMO**
whose End-User can Web surf with it, and go out to
briskly interfere at length with various supply chains,
potentially purchasing practically everything else on
this kitchen table through e-commerce;

VIII.

One radically **GIZMO**ized *gadget* with two barcodes,
(one glued on, one inscribed,) plus a Web site, an email
address, a complete postal mailing address, and a glue-
on, metal-and-plastic, interactive, electronic anti-theft
tag. That object would be the bottle of Serbian brandy,
which by this concerted effort has definitely estab-
lished itself as the kingpin of Balkan consumerism.

RFID WORLD

MILITARY

ACADEMIA

R&D

ESPIONAGE

DIPLOMACY

NATIONAL SECURITY

PRISONS

STANDARDS BODIES

FOR-PROFIT BUSINESS WORLD

BIG RETAIL
"Bricks and Clicks"

E-COMMERCE
PHARMA, SHIPPING, LOGISTICS

PUBLIC OPINION

SHAREHOLDERS, USERS GROUPS, CONSUMERS

LOBBIES, THINK TANKS

BLOGGERS

PRESS

NGOS

THE EXCLUDED
PARTIES WITHOUT A VOICE –
"the embscalypse"

THIEVES

HACKERS

BLACK MARKETERS

PERVERTS

ORGANIZED CRIME

TERRORISTS

BIG BROTHER

TYRANTS

FIGURE 4

11.

ARPHIDS

The EAN-UCC revolution has been a colossal success. It's a coded delivery system, and it delivered what it was designed to deliver: by adding identity to objects, it enabled more accurate inventories, automated re-order- ing, improved market analysis, a quicker movement of objects to and off the retail shelf, plus a sharp reduction in human errors in the supply and retail chain. And that achievement brought a lot of money to a lot of people.

Barcoding started as an R&D notion, then leapt the chasm of commercialization, into a firm foothold in the food & beverage business. It accelerated upslope in short order, into general merchandise, into healthcare, into government, and even onto the back of the book you are holding right now. Barcoding works. It is a great industrial advance. Pretty much any enterprise with a transporta- tion chain can work more efficiently with barcoding.

On this very day, barcodes were scanned somewhere on this planet an estimated five billion times. The industrial payoff for exploiting barcodes has been 50 times larger in scale than was once estimated, when the system was first proposed, back in 1975. This success was also its bane, eventually. Now that people know about the full joy

and utility of a coded identity system for objects, paper barcodes are becoming obsolete.

The familiar system of black and white bars has passed the top of its S-curve. It is under threat from the new, radically disruptive, and far more capable EPC or "Electronic Product Code." Those aren't here yet. I don't have a single EPC object on this kitchen table. I know they are on the way, though.

Last night I watched the local television, and saw that the pet dogs of Belgrade were receiving injections of Radio Frequency ID identity chips. The local dog pound is being outfitted with an RFID reader, and when strays are collared, they'll be scanned. Then lost dogs do not have to have their homely pictures photocopied onto telephone poles. Lost dogs can be rescued quickly and returned to their grieving owners, which is sweet and nice.

But that's not the only way to describe what I just saw. We might also say that an RFID-injected elite of dogs will be returned to their owners posthaste, because these dogs now have a machine-readable identity. All other dogs are in grave and increasing danger. Belgrade is a rough town with a serious stray-dog problem. Being a Belgrade dog without an injected RFID may become a capital canine offense in relatively short order. We've got a yawning digital divide between the injected elite and the canine proletariat.

One could launch into a jeremiad at this point and point out that this grim dog-pound technology could be trans-

ferred at little cost and expense to, say, human vagrants, and then gypsies, ethnic minorities, political opponents, and/or anything else that moves, breathes or votes... but that doesn't much advance the analysis. What does advance the debate is the shocking realization that RFID chips are happening already *in Belgrade*. Serbian television news is promoting this technology to the general civil population as a public-service benefit. Who knows? This new coding system might even work as intended, at least in the sense of relieving some owners of worry—and bureaucratically liquidating some hazardous feral dogs.

Barcodes are made of paper. Electronic codes are electronic. That's why the EPC coded objects are coming; for the same reasons that electronics shoved paper aside in a host of other applications.

Paper codes are too slow, limited and small in scope for the ever-burgeoning needs and desires of the object identity enterprise. There's only so much data their one can cram into paper barcode digits.

A new-and-improved code would, obviously, import and store much more identity. It would also announce its identity more loudly, under a wider set of circumstances, to a wider set of scanning devices, and in more sophisticated ways.

Hence a new-model electronic identity: RFID, or "Radio-Frequency ID." RFID is busily composting EAN-UCC, even as we speak. The term "RFID" almost ranks with "EAN-UCC" in its acronymic ugliness. So henceforth, I

will follow slang practice in the infant RFID industry and refer to radio-frequency ID labels as "arphids." We need to get used to thinking of these things as the seeds of SPIMEdom, not as some raw cluster of capital letters. We're better off referring to them with a neologism—"arphid"—that subtly implies some newfangled, infestating, autoreplicating plague.

First generation arphids barely work. They barely work in the following way: an RFID is a very small chip of silicon with a tiny radio antenna. An RFID tag can be as small as half-a-millimeter square and no thicker than a paper price tag. When it's hit by a blast of radio energy in the proper wavelength, the antenna will bend with the radio energy. The bending causes it to squeak a jolt of electrical energy through the attached silicon chip. The chip then automatically broadcasts a built-in ID code back through that tiny antenna.

That is a "passive" arphid, which already exist in large numbers. Passive arphids are cheap and easy to make in huge volumes. "Active" arphids have their own power supply, which allows them to get up to a wider variety of more sophisticated digital hijinks.

Arphids are tiny computers with tiny radios. They're also durable and cheap. It follows that one can build a new and startlingly comprehensive identity system with arphids. The arphid's antenna and chip get built into a weatherproofed, durable ID tag, to be glued, attached, or built-in to objects. A handy arphid wand (a "reader"

or "transceiver-decoder"), beams radio energy into the arphids, then reads their unique codes as they bounce back out.

If a barcode is like a typewritten page of paper, then an arphid is like a written page on an Internet Web site. Those are both "writing" of a sort, but only a naïf could consider them the same. An electronically transformed means of production and distribution enables a wide variety of potent new behaviors.

Barcodes must be scanned within the visible sight of an optical reader. So barcodes require an attentive human reader focused on the paper code at hand. Arphids behave more like bats: their unique bouncing radar shrieks can be heard in total darkness, and while objects are in motion, and even all at one time, in massive arphid flocks. No deliberate human act is required to probe arphids with a radio pulse. An arphid-management system could be automated to inventory every arphid in its radio range, as often as you please.

For common, passive arphids, that radio range is quite short: less than ten meters. Since arphids are little radio stations, they have to behave that way through the laws of physics: as you move farther away from them, their coverage weakens and breaks up. This is considered a feature rather than a bug, because it prevents saturation of radio signals, a form of electromagnetic pollution. Furthermore, metal and liquid—plumbing, wiring, metal appliances, a wide variety of everyday clutter—will reflect

or absorb radio beams in the arphid wavelengths. This means that most real-world environments are full of radio shadows, where arphids become effectively invisible.

Otherwise, it would be an elementary matter to build a super-arphid reader inside some fiberglass van, and drive through urban streets trolling for rich people with a lot of arphid-tagged purloinable stuff. Then thieves could rob the rich with maximal profit and minimal risk. This nightmare scenario is a little less likely to happen because arphids are so feeble from far away. Not that reading feeble signals is impossible to do. It's just expensive. Spy agencies like the NSA are sure to consider arphids of great interest, along with their little-known but long-abiding curiosity about the weak "Tempest" radiation that leaks out of computer monitors. Secretly snooping data from somebody else's arphids already has a name: it's a dirty trick known as "skimming."

So imagine: here you are, in tomorrow's emergent world of SPIMES, with your arphid tags, your arphid-reading wand, and some capable network nodes full of arphid-management software. Let's consider what can happen when you have the enabling means of a "mobile ad-hoc network." This means salting your arphids with a whole lot of arphid wands, placed every ten meters or so. These "wands" are not handheld scanning devices any more, so they might be better described as arphid "monitors."

A "monitor" should be cheap and easy to make because it's basically just an active arphid. It's an arphid that

happens to have a steady source of power, a longer communication range, and a more sophisticated chip. It's been moved from passive to active: it's now a boss arphid. Monitors might be plugged into the wall, like contemporary appliances. Further into the future, they might be wireless and running off an onboard micropower system.

The point of installing these monitors is that they can communicate information about the arphids to one another. Then they can filter that torrent of data and move the valuable information over long ranges. They become bosses, guards, co-ordinators. Add these monitors into the mix—active hubs of arphid data, repeaters, relayers, linked to a global network

—and you have created an

INTERNET OF THINGS

12.

AN INTERNET
OF THINGS

Given an INTERNET OF THINGS, you can read your arphids anywhere. Via a Net, via a 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.

13.

THE MODEL IS THE MESSAGE

Sometimes I really want an object, the thing *qua* thing, the literal entity itself, physically there at hand. At many other times, many crucial times of serious decision, I'm much better served with a representation of that object.

Suppose that I'm trying to create a new kind of object, to shape a new kind of thing. I don't want to be burdened with the weighty physicality of the old one. I want a virtual 3-D model of the new one, a weightless, conceptual, interactive model that I can rotate inside a screen, using 3-D design software.

Then I'm not troubled by its stubborn materiality: I am much freer to radically alter its form. I can see left, right, front, back, port and starboard. There's no gravity, no friction, no raw materials for making physical models. I'm spared the old exigencies of foamboard and modelling clay, of chickenwire frames and plaster.

I can change those immaterial plans as many times as I want. I can restore the changes, save the changes, erase the changes, export the changes. Because it's only data, it's weightless and immaterial. I can research vital

information about it without lifting my hands from the keyboard or taking my eyes from the screen. I can show my work to a host of scattered co-workers at very little cost: I can offshore it to India, email it to China, get it back within the day... I've got an object processor! I'm crunching shapes! I'm processing objects! I'm no more likely to return to the older methods than authors are likely to return to typewriters.

After a while, once I'm used to this new routine, I don't even think of my model as "the model" any more. My model has become the central part of the creative effort. The modelling arena is where I shape my things. The physical object itself has become mere industrial output. The model is the manager's command-and-control platform. The object is merely hard copy.

In a SPIME world, the model is the entity, and everyone knows it.

Yesterday's old, creaky, limited 3-D modelling programs, such as ProE, FormZ, Catia, Rhino, Solidworks, are long-forgotten. Thanks to exponential, Moore's Law-style increases in processing, storage and bandwidth, an advanced SPIME 3-D modelling program can easily boast a finer grain of detail than the physical object it models. Instead of approximating form with a crudely nested set of polygons, a program with this capacity can generate more modelling polygons than the object in question has molecules. There's more stored in the map than there is in the territory.

Practically every object of consequence in a SPIME world has a 3-D model. Those that were not built with models have 3-D modelling thrust upon them. They are reverse-engineered: one aims a digital camera at the object and calculates its 3-D model by using photogrammetry.

While you're at it, you might as well photogrammetize your home and/or office, too. Your SPIML management software will surely become more efficient when it can measure and calculate the radio effects of the local walls, floors, ceilings, and furniture. Mind you, SPIMI coverage is always patchy—always, because the laws of physics dictate that. No model is ever total and perfect. But you can always invest some more Wrangling ingenuity to make your Spiming just that little extra bit faster, more secure, less patchy.

How do you climb up that extra notch? With more processing speed, more storage and more bandwidth. How much does that cost? Something, but less all the time.

Where and when will you hit the SPIME limit to the measuring, labelling, and timing of made things, and this mapping of their environment? One might imagine (like Jorge Luis Borges in his prescient parable Tlön, Uqbar, Orbis Tertius), that the territory can't support the map. Sooner or later, reality will be historicized to the point of collapse. One is just bound to bog down and go broke in mud streams of sensor data, in ever-deeper sediments of bookkeeping.

Really, though? How, exactly? Why? For how long? Of course any particular processor, storage network or bandwidth network is subject to entropy and storage and obsolescence. They will break, they will fail, they will have limits. But it may be that that process of deploying them, and extracting useful knowledge from analyzing that deployment, is endless.

Vannevar Bush said that science was the "endless frontier." Will we ever know so much about how things work that we can't afford to learn any more?

We can't know the answer to that. But we can surmise that a Wrangler, by nature, is someone pressing hard against these limits. So: having eagerly Wrangled my walls, floors and ceilings, and having contingently nailed down the balky behavior of my SPIMES, I now begin to wonder seriously about the other physical contents of this piece of space and time. Yes, to be sure, I have all my SPIMED objects named, coded, identified, and historicized—but what about their *environment*?

I am scandalized when it dawns on me that there are some "objects" in this area which are unnameable! Those would not be manmade objects at all, but environmental phenomena such as humidity...smog particles...pollen, magnetic fields, toxins, mice, dust mites, fluctuations in temperature.... Certain local phenomena have not been subjected to a fully monitored historiography! Yet they can have measurable effects on both me and my precious SPIMES! Something must be done.

Here I take my technosocial cue from the experts of long-term object management, who are museum curators. Museum curators know well that the serious-minded care of precious objects over a long time must require both closely cataloged objects, and a closely monitored environment surrounding them.

Anything the museum curators of old used to do, I, as a modern Wrangler of SPIMES, can do at low cost and high intensity. So it's high time I added new functionality to my SPIME monitors. While the monitors are sitting there emitting and receiving those radio ID waves from identified objects, they might as well briskly measure light exposure, airborne pollution and pathogens, traveling microbes, pollen counts.... When inscribed into a silicon chip, functionality is very cheap. I've got bandwidth and storage galore, so why not add to my objects, a matter of course, a capacity to measure acceleration? Magnetic fields? Tilt? Chemical exposure? Any phenomenon that might trouble me and my possessions in any conceivable way? You never know when data like that might come in handy. After all, I don't have to think about it. I'll just explore it, store it, and maybe mine it later with some well-defined, handy interface.

Did I mention clocks? Of course every SPIME must have a clock, that sensor for time. Shouldn't every object know *what time it is*? Fashionable items, perishable items— these goods have a time bomb ticking in them already! Anything with a sell-by date surely needs a clock! Given

a long view, everything has a sell-by date. All things must pass; some of them just measure their way there.

> IT MAY NOT SEEM THAT I "NEED"
> ALL THAT INFORMATION.
> BUT THAT'S AN OLD-FASHIONED WAY TO THINK.
> I DON'T "NEED" EVERY WEB PAGE
> ON THE INTERNET, EITHER.
> IT'S NOT A QUESTION OF DESIGNING
> AN INTERNET OF THINGS
> TO MEET MY SO-CALLED "NEEDS."
> IT'S VASTLY CHEAPER
> AND SIMPLER JUST TO ENABLE AUTOMATIC
> INFORMATION-GENERATING
> DEVICES AND PROCESSES, THEN SEARCH THEM
> MECHANICALLY AND CYBERNETICALLY,
> TO FIGURE OUT WHAT I "NEED."

I can't possibly waste my time trying to tell the Internet what's handy for me. That approach simply makes no sense. Just jam it all in there, all you folks everywhere! I'll make it my own business to winkle out what I need. You give what you give, and I'll give what I give. Then I'll search out my own answers in this blooming plethora. I can't waste time and energy telling you what I "need", or defining the problems of mine that you're supposed to "solve." I'll just use search engines to follow the tracks of other linkers and searchers. If it was good enough for people

just like me, then it's probably good enough for me. It works for Google, then it's auto-Googling.

Who owns the SPIME? This 3-D model awaiting its materiality.... This new-minted object on its way through a long set of human-object interactions? Who can alter it? What can they do with it? This ownership question in SPIME can never be settled. The fact that it's unsettle-able is why there is money in it. There are no permanent solutions to SPIME questions. Only Customers and Consumers imagine that there are permanent solutions to physical ownership and intellectual property issues: End-Users know it's all a shell-game, while SPIME Wranglers don't even bother with the shell—they are the shell.

Wherever there is an insoluble intellectual-property question, there is a SPIME career. That's where I Wrangle. When and if it gets more or less figured out, I bump up the S-curve and I go Wrangle somewhere more advanced.