

XIX.

Panic in the Year Zero (2000)



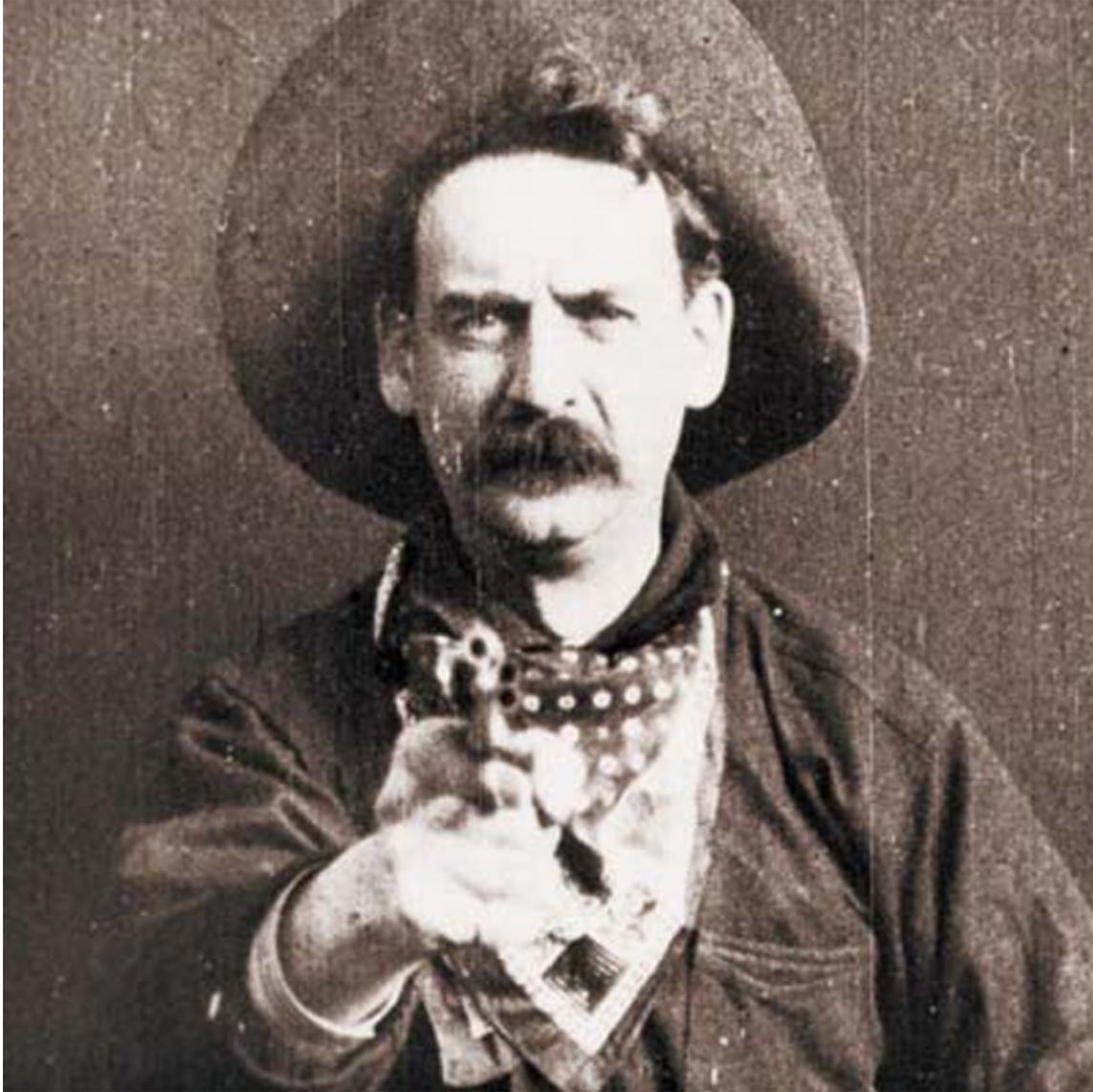
New Year's Morning (1/1/00)¹

I woke up early, set out with the dogs, climbed the southern peak of Bear Mountain aka South Boulder Peak (8500 feet, give or take), admired the view, and climbed back down.

Thus far, admittedly, the new century doesn't suck. But give it a day or two.

¹ To Richard Strelitz.

Panic in the Year Zero (1/1/00)



Early contributor to *Cahiers du Cinéma* takes aim at the bourgeois aesthetic, 1903.

When the radical idea branches out into parallel ramifications, how can a consecutive series be formed of senses in their own nature collateral?

— Dr. Johnson, from the Preface to his *Dictionary*.

(i)

One of the strangest conversations I ever had took place in a student cafeteria in Santa Barbara. It was largely one-sided: I was absorbing the wisdom of an aspiring literary critic, a guy with an impressive mastery of the jargon, and kept prompting him with questions just to listen to him talk. He seemed to have an answer for everything, and his manner of expression was fascinating, even if form slaughtered content and nothing he said really made any sense. — He had some definition of Art of which he was very proud, for instance, repeated several times for my benefit; of this I remember something about “occasions of delight” but nothing else, since such an attempt at all-encompassing generality of necessity was vacuous. — Nonetheless I saw no need to disabuse him of his misconceptions. He had talent but hadn’t quite figured out what to do with it. I could relate to that.

As it happened on this particular occasion he was in a prodigious funk because he was off that evening to meet George Steiner. Clearly he saw in this the potential for epic confrontation, the *King Kong versus Godzilla* of the knowitalls, and he had been casting about desperately for some question he could pose which the master bullshit artist would not be able to answer. — What he had settled on, apparently, was this: What is the most perfect classical symphony? for which he had some pat answer, one of Haydn’s. — At the time I didn’t really know Haydn, though now he is one of the mainstays of my music library and I’ve listened to all the symphonies dozens of times. No single one stands out, of course, and in fact though Haydn is perfect as Haydn, he is as it were uniformly so; indeed it would be unclassical to allow

one piece to be better than another, that's almost the point. — Still I was astonished at the sheer cheek of the guy for [a] pretending a question like this had to have an answer — clearly he was not a student of Wittgenstein, he thought the fact that he could phrase the question in itself guaranteed that it was meaningful — and [b] being able to delude himself that he had singled out a unique candidate by some exercise of Olympian aesthetic intuition, not by mentally throwing darts at a board.

Indeed, how was it even possible to pretend to answer such a question? I thought about it afterward, and phrased similar puzzles to which it might be easier to find an answer. — Could I name the most perfect rock and roll single, for instance? sure enough an answer popped into my head unbidden — The Who, “I Can See For Miles” — though I knew just as quickly that the choice was entirely arbitrary, and not an indication that I shared the vision of the gods.² — But where did this delusion come from?

More to the point, where had the idea come from that everything could naturally be put in order? And if it could, then why in *linear* order? Implicitly my literary friend presupposed that someone possessed of a sufficiently keen aesthetic sense, viz. himself, could assign each of the 104-plus-two-plus-one symphonies of Haydn a degree of perfection, and list them from top to bottom. — It was something like the idea of the ontological argument, that one could enumerate the individual perfections,³ and whichever had the most, won. Though even this picture somehow left it out that a set of ten positive attributes has 252 five-element subsets, all presumably equivalent in perfection but distinct —

² Brian Wilson, for instance, gave the title to “Be My Baby”; Wilson’s composition “God Only Knows” made Paul McCartney cry; pick a song of Paul McCartney’s, and continue the game until you tire of it.

³ There are other variations on the idea, of course, but — let me impose an arbitrary order of my own — they’re all equally stupid.

— Well. — In the case in point, the mania for ordering we see all around us as the year, the century, and the millennium draw to a close and even people who ought to know better feel compelled to compile rankings of the ten best poets, the fifty most significant inventions, the hundred greatest athletes, the two hundred deepest thinkers, the thousand most fascinating personalities — look! Madonna ranks ahead of Martin Luther! — leading to the million most absurd conclusions and the billion stupidest lists.

But this is completely wrong.

The fallacy is simple: it is the assumption that if the natural axioms for order hold, i.e. if in the set which forms the universe of discourse, for any x, y, z ,

$$x \leq x$$

$$(x \leq y) \wedge (y \leq x) \rightarrow (x = y)$$

$$(x \leq y) \wedge (y \leq z) \rightarrow (x \leq z)$$

then that set can be totally ordered, i.e. for any x and y either $x \leq y$ or $y \leq x$.

The most common (and most useful) orderings however are partial, e.g., the relation of divisibility among pairs of integers — where though certainly for any x , x divides x , for any x and y , if x divides y and y divides x then x equals y , and for any x, y , and z if x divides y and y divides z then x divides z — still, it is not true that for any pair of integers x and y (say, 15 and 21) that either x divides y or y divides x . Thus 3 is in this sense “less than” both 15 and 21, and both are “less than” 105. But neither is “more” or “less” than the other. — I spell this out in such excruciating detail because, its triviality notwithstanding, literally no one seems to understand it.

Wittgenstein famously said of this kind of *idée fixe* "a picture holds you captive," which suggests — correctly — that the simplest way to break the spell of one picture is usually just to draw another. So here are a couple, in fact Figures 1 and 3 from the first chapter of the classic treatment of the subject, Garret Birkhoff's *Lattice Theory*:⁴

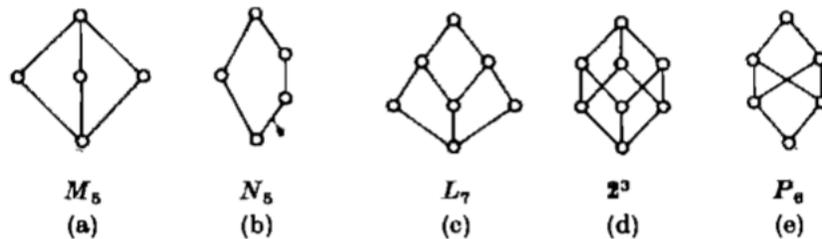


FIGURE 1. Examples of diagrams

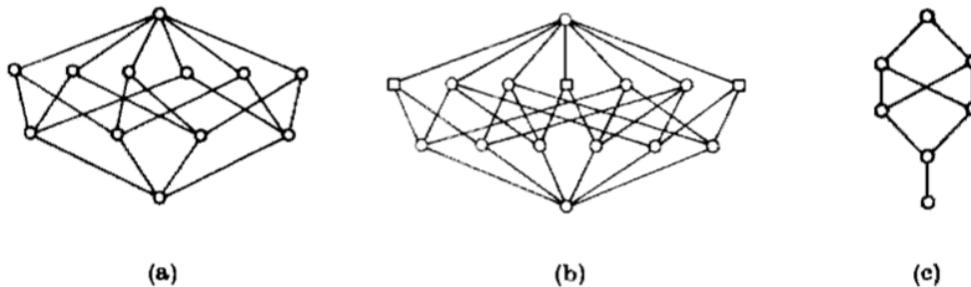


FIGURE 3

where the convention is employed that a line segment going up the page connects an element with its immediate successor. (Of course these need not necessarily exist either, but in many interesting cases they do.)

Note also that the usual response to these ambiguities — namely, to simply *make up* some artificial measure that allows you to provide an (equally artificial) answer to the question — is just as illegitimate. —

⁴ Providence, American Mathematical Society, 1940.

Somehow the trivial fact that one can always invent some way of arbitrarily linearizing an order which is not naturally linear is taken as evidence — at least by the mathematically incompetent — that all orders really *are* linear.

But as always this is simply a failure of imagination.

{...}

The folly of the enterprise accepted, nonetheless the moment has arrived to mark the seven hundredth anniversary of the opening scene of the *Divine Comedy* by handing out the Garbonzo Awards.⁵ Superlatives are going to rain down upon the history of the cinema, and we'll try to pretend that they mean something.

But not very hard. — From the beginning, then:

Le voyage dans la lune. [George Méliès, 1902.]

It is only appropriate to begin with a notice added long after the fact, since the reconstruction of the cinematic past inches backward as time goes forward, and it was not quite so obvious how extraordinary the first of all science fiction films was until its digital restoration of 2011. But now it is clear that no one really equaled this spectacular conflation of Verne and Wells before Stanley Kubrick. — In lovingly hand-tinted color! I never tire of watching it.

⁵ I did at one point briefly consider doing these annually, but realized at once there was no way I could compete with Joe Bob Briggs, and abandoned the idea.



The Student of Prague. [Stellan Rye, 1913.]

Whitehead said the safest general characterization of the European philosophical tradition was that it consisted of a series of footnotes to Plato. Likewise the safest characterization of the cinema, at least of everything I like about it, is that it consists of a series of footnotes to Expressionism. And though Lotte Eisner begins her definitive survey of the movement (*L'Écran Démoniaque* aka *The Haunted Screen* [1952]) with the consideration of *The Cabinet of Dr. Caligari* [Robert Wiene, 1919], it is this which should be regarded as marking its first specimen; not least because it inspired Otto Rank's classic study of the theme of the Evil Twin, *Der Doppelgänger* [1925].

(Here I have already named two of the three best books about the

cinema. The third is Truffaut's interrogation of Hitchcock [1967].)



Les Vampires. [Louis Feuillade, 1915.]

In the early silent era the serial could still be High Art, and this is the greatest of all of them, a seven hour melodrama about a gang of black-clad ninja gangsters who rule Paris from the underground. Featuring a bewildering variety of aspirants to the title of Grand Vampire (Feuillade kept killing off his bad guys when they made contract demands) and the unforgettable Musidora as the anagrammatic Bad Girl, Irma Vep.



Up against the wall, motherfuckers.

Intolerance. [D.W. Griffith, 1916.]

On my first viewing of Kenneth Branagh's *Dead Again* [1991], I was extremely impressed with the concluding chase, which intercuts two action sequences forty years apart. "Wow," I thought, "that's original. I've never seen that before." — Then of course smote myself on the forehead, because duh, Griffith invented that too.

Probably the most influential film ever made, if only for the example it set for film editing; the Russians, e.g., mastered montage by taking it apart and putting it back together again. — Also worthy of note since when I perfect my time machine and have, like Faust, all the women

throughout history to choose among for my paramour, the odds are pretty good that I'll skip over poseurs like Helen of Troy and just go back for the Babylonian princess, Seena Owen.

Not necessarily Griffith's best. however. That might be

Broken Blossoms. [D.W. Griffith, 1919.]

I saw this screened at the Chautauqua Auditorium in Boulder a few years ago, presented and accompanied by the scholar/pianist Hank Troy. It was an instructive spectacle, since for most of the film the audience, which of course thought itself far too sophisticated for such antiquated melodrama, giggled at what they deemed the excessive mannerisms of the actors — “We have outgrown all this,” I could sense them thinking, “after all we have seen reruns of *M.A.S.H.*” — At which I chuckled to myself, thinking, Just wait, assholes. — Finally the narrative arrived at its climax, in which Lillian Gish, trapped in a closet by her brutal father, acts out her terror in a frantic frenzy which concludes only when he breaks the door down and beats her to death. The laughter, which had continued for a moment or two in the beginning of the scene, gradually faded out, and was replaced by a stunned silence, broken only by occasional sobs. — When the scene was first filmed Griffith and his crew were rendered speechless and trembling by Gish's performance; seventy years later, it still had the same effect. That is the permanence of art.

The Spiders. [*Die Spinnen*. Fritz Lang, 1919.]

The canonical portrayal of the Illuminati: millionaire yachtsman Kay Hoog goes sailing, picks up a message in a bottle, finds a treasure map and follows it to a lost Incan gold mine, contending not simply with giant serpents and savages who practice human sacrifice but the agents of the nefarious Spiders, a secret society which meets to scheme to rule the world around a long table in an underground lair; period

costume excepted, the Bond movies stole this note for note, though it's clear after seeing this that Blofeld really should have worn a top hat.
— Point of trivia: this was the assignment Lang took instead of directing *The Cabinet of Doctor Caligari*.

Nosferatu. [F.W. Murnau, 1922.]

Still the best vampire movie ever made. (And without question the scariest vampire, Max Schreck.)

Greed. [Erich Von Stroheim, 1924.]

Of all lost silent films, this is the one that hurts the most. Von Stroheim's original cut was eight hours long; after Irving Thalberg's minions got done with it, only 140 minutes were left. What remains is uniquely absorbing nonetheless. — One can still pray for a miracle, but it's probably hopeless.

Sherlock Jr. [Buster Keaton, 1924.]

Long before Steven Wright claimed he was arrested for walking in someone else's sleep, Buster Keaton had made that idea the basis for a theory of film.

The Battleship Potemkin. [Sergei Eisenstein, 1925.]

The greatest work of the most obvious example of a universal genius among film artists. — Maybe the most famous montage sequence (the Odessa Steps) in the history of film. (The other obvious candidate is the shower scene in *Psycho* [1960].)

The Phantom of the Opera. [Rupert Julian, 1925.]

The most thoroughly retired of all exhausted roles, the most memorable visage of The Man of a Thousand Faces. Others may yet attempt to play the Phantom, but I don't know why they should bother. Lon Chaney *was* the Phantom. There can be no other.

The Lodger. [Alfred Hitchcock, 1926.]

The first great Hitchcock thriller, a silent based loosely on the career of Jack the Ripper. — Though as noted I can't make sense of the greatest-director question, it does seem incontrovertible that Hitchcock made great pictures in more decades than anyone else.

(Buñuel's creative life was at least as long, beginning with *Un Chien Andalou* [1929] and extending through *That Obscure Object Of Desire* [1977], but his career went into eclipse for fifteen or twenty years during an enforced political exile, and he had to work his way back up through the Mexican cinema.)

Napoleon. [Abel Gance, 1927.]

Best snowball fight. — Also, arguably, greatest silent film in the great age of silent film, greatest biopic, greatest wealth of visual ideas (some still not stolen by subsequent directors), but in any case: definitely the best snowball fight.

The Passion of Joan of Arc. [Carl Theodor Dreyer, 1928.]

Among the other superlatives that may be lavished on this extraordinary production one must include Most Meteoric Career:

Maria Falconetti, after a couple of earlier bit parts, played the lead here and then, understandably, burnt out on the cinema and retired to the theater.

Originally shown without sound but released on DVD with Richard Einhorn's oratorio "Voices of Light," written specifically to accompany the film.

Shanghai Express. [Josef Von Sternberg, 1932.]

Favorite Von Sternberg, and best movie on a train. Most beautifully lit photography of a female lead (Dietrich), endlessly imitated.

Duck Soup. [Leo McCarey,⁶ 1933.]

The funniest movie ever made, and the definitive statement of my philosophy of government; I have watched it unfailingly at every moment of national crisis.

Also, probably⁷ the greatest comic moment: Chico and Harpo are announced at the office of Ambassador Trentino; "Chicolini and Pinkie are here," says the secretary brightly. Complications ensue.

⁶ The idea that the director might in any sense have been the author of a Marx Brothers production is of course ludicrous, but convention demands that he be named. — Groucho did say McCarey was a decent poker player.

⁷ I say "probably" because there were a couple of other occasions on which I nearly choked laughing in a theater; both managed, I think, by Peter Sellers.

42nd Street. [Lloyd Bacon, 1933.]

Definitive work of the great American surrealist, Busby Berkeley, and an excellent illustration of the postmodern principle that all the best musicals are about making one.

King Kong. [Ernest B. Schoedsack and Merian C. Cooper, 1933.]

Best entrance, no contest. — Also, just as all meter sticks are referred to the standard meter, all *Scream Queens* are compared to Fay Wray, *ne plus ultra*. — And surely I can't be the only one who always cries at the end of this movie.

(Second best entrance: Ursula Andress in *Dr. No* [Terence Young, 1962].)

Bride of Frankenstein. [James Whale, 1935.]

What can I tell you? the girl of my dreams.



Was this the face that launched a thousand ships
And burnt the topless towers of Ilium?

Flash Gordon. [Frederick Stephani, 1936].

The greatest serial of the sound era. — When the Earth is threatened by imminent collision with the runaway planet Mongo, brilliant albeit unbalanced scientist Hans/Alexis Zarkov sets off in his rocketship with football hero Flash Gordon and scream queen Dale Arden on a desperate quest to head off disaster. Once landed on the alien orb, they confront the evil emperor Ming the Merciless and his minions in a series of swordfights, rocket duels, and wrestling matches with giant octopi so endlessly inventive that George Lucas still hasn't stolen all of it.

Best premise (planetary apocalypse), best villain (Ming), best Bad

Girl (Priscilla Lawson as the refreshingly assertive Princess Aura, and it is clearly she, not Dale, who was the model for Princess Leia), best explanation why everyone on another planet speaks English (none).

Le Règle du Jeu. [Jean Renoir, 1939.]

Greatest work by Jean Renoir. — I used to argue it was *Grand Illusion*, but changed my mind; mainly because (it took a while to figure this out) Renoir himself played Octave. This beautiful gesture had something like the effect that would have been produced if *War and Peace* had been a movie and Tolstoy had played Pierre. — This founded a genre, obviously, though none of the imitations bear comparison with the original.

The Wizard of Oz. [Victor Fleming, 1939.]

And here is that Haydn symphony: the most perfect of all motion pictures, and the Platonic Idea of the scenario. At least if you leave Kansas out of it.

Stagecoach. [John Ford, 1939.]

Still the best Western. — I prove the thesis as follows: I don't even *like* Westerns, and I never tire of this.

His Girl Friday. [Howard Hawks, 1941.]

Best screwball comedy; based on a play written by the greatest hack of all time, Ben Hecht.

Citizen Kane. [Orson Welles, 1941.]

All the superlatives have long since been exhausted. — But there you go: Most superlatives.

Casablanca. [Michael Curtiz, 1942.]

It is obvious where to look for the greatest moment in motion pictures; the only question is, which one. — So. — Not “Play it, Sam.” — Not the exquisitely-timed dramatic pause — which like everything else about this movie only gets better when you know it is coming — between “Major Strasser⁸ has been shot!” and “Round up the usual suspects.” — Not “I came here for the waters” or “Your winnings, sir” or “There are certain parts of New York I’d advise you not to invade.” — No, I think it is this: the carousing Germans have grown gradually louder, and now, having commandeered the piano, have burst into song: “Die Wacht am Rhein”. — Victor Laszlo’s eyes flash. He strides across the room and — with all eyes now upon him — says in commanding tones to the leader of the orchestra: “Play the ‘Marseillaise’!” — Uncertain, the musicians look across the room at Rick. — Ever so slightly, Rick nods. — “Play it,” Laszlo demands. — They play the “Marseillaise”.⁹

Dead of Night. [Alberto Cavalcanti et al., 1945.]

An anthology film consisting of five tales of horror by different directors, embedded in a frame-tale which turns into a nightmare from which the protagonist finally awakes; only to discover that the story

⁸ Even the best piece of trivia can be found in *Casablanca*: Strasser is played by Conrad Veidt, who a couple of decades and about a thousand years earlier had been the Somnambulist in *Caligari*.

⁹ I know, I know: it’s stolen from *Grand Illusion*. But it improves upon the original.

has commenced again from the beginning. Possibly the scariest movie ever made.¹⁰

Detour. [Edgar G. Ulmer, 1946.]

The greatest B movie ever made, and one of the greatest films noir. A Depression sensibility, and a corresponding budget. — The protagonist is very nearly the Platonic Idea of the Loser, and I study him when I feel that I need to work on my attitude problem. — “A [lousy] ten-spot,” he says of the tip a patron leaves him for his piano playing, “a piece of paper, crawling with germs.” — Whoa. Dude.

Also, Ann Savage as one of the two or three best film noir femmes fatale. — Another is Jane Greer, in

Out of the Past. [Jacques Tourneur, 1947.]

Build my gallows high, baby.

¹⁰ Curiously enough, it also had a considerable impact on the cosmological debate: Hermann Bondi, Thomas Gold, and Fred Hoyle saw the film together in a theater in 1946, and walked out discussing its cyclical structure; Gold made the suggestion that all films should be made on the same model, with circular plots, and shown continuously, so that people could enter at any point, and then asked whether the universe might not be like that. This was the origin of the famous steady-state theory, which was for a long time the rival of the Big Bang as the standard cosmological picture. [See Jane Gregory, *Fred Hoyle's Universe*. Oxford: Oxford University Press, 2005, Chapter 3.] — I have always suspected, incidentally, that the famously nonlinear plot of *Pulp Fiction* [1994] represents an attempt to reproduce the standpoint of the viewer who typically wanders in and out of a film narrative according to when he randomly tuned it in on television and how many times he had to see it before he put the whole picture together. Though whether Tarantino has applied this idea to cosmology is anyone's guess.

High Noon. [Fred Zinnemann, 1952.]

Best time lock. (Not exactly breaking news.)

Cat Women Of The Moon. [Arthur Hilton, 1953.]

The perfection of the rocketship movie: four guys and a girl blast off from White Sands for the Dark Side of the Moon, where they discover a hidden city within the lunar caverns inhabited by a race of showgirls named after the letters of the Greek alphabet who are intent upon using their superhuman mental powers to effect the conquest of the Earth. — Bring your 3-D glasses and drop a clipboard in your lap: this is the stuff that made the Fifties great.



Marie Windsor meets the girls.



A message from the Home Office.

Robot Monster: [Phil Tucker, 1953].

Ed Wood has been maligned: *this* is the worst movie ever made. (And in 3D!)

Two legends about it:¹¹ first, that it was made for \$502.25; second, that the director attempted suicide once it was completed. — One would say this is too cute not to be apocryphal, but sometimes reality has the same problem, and it may actually have happened. — And, of course, had he succeeded it would have set an invaluable precedent.

(Originally I awarded second place to *Wrestling Women Versus the Aztec*

¹¹ These and other mortifying revelations may be found in Bill Warren's encyclopedic history of (mainly bad) movie science fiction, *Keep Watching the Skies*.

Mummy [René Cardona, 1964], but then developed a thing for Lorena Velázquez, and removed it from consideration.)

The Big Combo. [Joseph H. Lewis, 1955.]

Best work by the best film noir cinematographer, the great John Alton. (See also the final chase in *He Walked By Night* [Anthony Mann, 1948].)

The Conquest of Space. [Byron Haskin, 1955.]

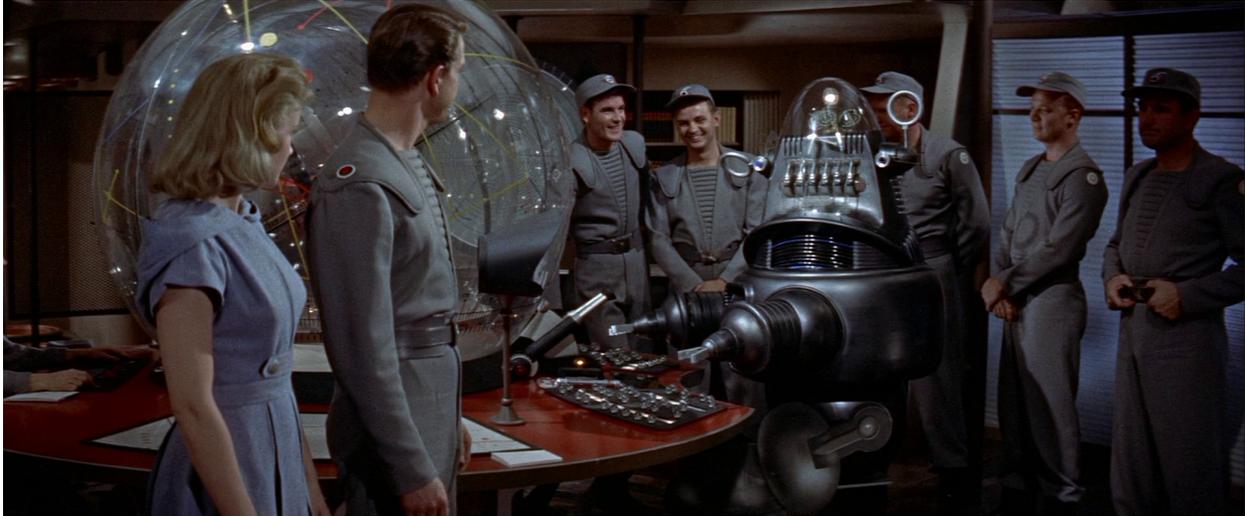
Most excited I ever got about going to the drive-in as a child. It did not disappoint.

Rififi. [*Du Rififi Chez les Hommes*. Jules Dassin, 1955.]

After being narked out as a Commie to HUAC (by Edward Dmytryk, among others), the celebrated director of *Night and the City* [1950] was so thoroughly blacklisted he couldn't even make a film in France for five years. Then he made this, the greatest of all heist movies, the story of an impossible jewel theft that unravels only after it has succeeded.

The job itself, the centerpiece of the film, is conducted in an absolute silence — no music, no dialogue, only the muffled incidental noises made by men who are straining with inhuman intensity to make none at all — that lasts for 20 minutes. It is utterly mesmerizing.

Subsequent caper movies have gone to great lengths trying to surpass the heist, but have generally failed to grasp the nature of reversal, the idea that the most brilliant success must precipitate the most complete catastrophe. Dassin knew this from his own experience. It shows.



Firm hand on the tiller.

Forbidden Planet. [Fred M. Wilcox, 1956.]

Best robot (Robby,¹² whose subsequent career was so long that one would have expected affairs with Monroe and Ava Gardner, a ghost-written showbiz memoir, and a biopic highlighting his struggle with alcoholism), as a corollary manifestation of what were, to this point in time, by far the best production values ever seen in a sci-fi production. — MGM! They couldn't turn it off! — Also not quite the best remake of *The Tempest*, but certainly in the running.

¹² The original prop, having been restored by William Malone, was sold at auction in 2017 for \$5.38 million, a record which surpassed the marks set previously by the Maltese Falcon statuette (\$4 million), Marilyn Monroe's white dress from *The Seven Year Itch* (\$4.6 million), and the 1966 Batmobile (\$4.6 million). — See the press release of 21 November 2017 by Bonhams New York: https://www.bonhams.com/press_release/25037/.

Vertigo. [Alfred Hitchcock, 1958.]

The best film by Hitchcock? well, maybe that's *Notorious* My favorite? well, *The 39 Steps* The deepest? — I would say so, though I'm not sure the question makes sense. — What is certain is that it is the most frequently quoted.

Little Shop of Horrors. [Roger Corman, 1960.]

Greatest movie ever made over a weekend, by the greatest B movie director.

Unless it was

A Bucket of Blood. [Roger Corman, 1959.]

But that took a couple more days to complete, so the comparison may not be fair.

This, however, is sometimes cited as the best portrayal of beatnik culture committed to film. That probably isn't accurate either; nothing, really, can compare to the television series *Johnny Staccato* [1959/60], starring John Cassavetes as a private detective who moonlights as a jazz pianist, or vice versa. — As an actor Cassavetes had a unique energy, it was like there was an electric current running through the guy, and arguably, of the myriad of players who portrayed private dicks, he was best of all.¹³

¹³ An opinion seconded by Thomas Pynchon in *Inherent Vice* [2009].

Last Year at Marienbad. [Alain Resnais, 1961.]

Most hypnotic opening. (*Europa* [Lars von Trier, 1991] is another candidate, but that sequence is briefer.)

8 1/2. [Federico Fellini, 1963.]

The great musicals are about making musicals, the great stinker B movies are about making stinker B movies. This is the greatest European art movie from the great age of European art movies, and it too is about making itself. — Of course, *is* this the greatest art movie about making an art movie, or is that *Contempt* aka *Le Mepris* [Jean-Luc Godard, 1963]? — It is such unanswerable questions that make this sport entertaining..

Dr. Strangelove, or: How I Learned to Stop Worrying and Love the Bomb. [Stanley Kubrick, 1964].

This illustrates the general problem perfectly, because certainly this is the greatest of all black comedies, but what is second best? There are two obvious answers, *Network* [Paddy Chayefsky,¹⁴ 1976] and *Brazil* [Terry Gilliam, 1985], but neither can be compared to the other, since they work in such different ways. (Nor would it be accurate to describe the situation as a tie.)

¹⁴ Directed by Sidney Lumet, but who remembers that? in this instance the writer was definitely the author.

A Hard Day's Night. [Richard Lester, 1964.]

Best rock and roll movie.¹⁵ — In second place are documentaries by D.A. Pennebaker: *Don't Look Back* [1967] and *Monterey Pop* [1968]; though the latter, alas, is now very hard to watch. Because they're all fucking dead.

Alphaville. [Jean-Luc Godard, 1965.]

Favorite leading lady starring in favorite movie by favorite director.

¹⁵ The choice of a Sixties kid. Jeff Beck, whose opinion is more valuable than my own, is known to maintain that *The Girl Can't Help It* [Frank Tashlin, 1956] is matchless.



The Capital of Pain.

The Saragossa Manuscript. [Wojciech Has, 1965.]

The most convoluted system of flashbacks and tales within tales ever committed to film; judging by the evidence not directed from a screenplay at all, but rather from some kind of flowchart designed by M.C. Escher.

Blow-Up. [Michelangelo Antonioni, 1966.]

Greatest rock and roll cameo: the Yardbirds, with Jeff Beck and Jimmy Page, playing “Stroll On”.

King of Hearts [Philippe de Broca, 1966].

Someone once told me this played continuously at a theater in Harvard Square for ten years. Had it been up to me, it would have played everywhere, for the entire twentieth century.

The Trip. [Roger Corman, 1967. Written by Jack Nicholson.]

Best psychedelic movie. (This doesn't say much.)

Prehistoric Women. [Michael Carreras, 1967].

The most perfect of fantastic adventures: a European hunter in Africa stumbles into a time warp which transports him to the Beginning of Time (aka the Valley of the White Rhinoceros), where a tribe of really cute brunettes have enslaved a tribe of even cuter blondes. — Will the Dark Queen, Martine Beswick, make him her love slave? or will he escape with the captive cavegirl, Edina Ronay? — It is precisely the deficiency of Real Life that it does not present me with such problems.

Valley of the Dolls. [Mark Robson, 1967.]

Absolutely my favorite piece of pure trash. — I have always yearned to return from Palookaville with my *Bildungsroman* moving up the charts to meet Barbara Parkins again, have her confess sadly that she

still could not resist me, and then retire to New England to hump all winter.

The Producers. [Mel Brooks, 1968.]

Greatest musical number of all time, “Springtime for Hitler”, in the second-funniest movie ever made. *Duck Soup* may surpass it, but really nothing else can match this. Brooks could have hung it up after he finished it and I still would have written him up as a genius.

2001, A Space Odyssey. [Stanley Kubrick, 1968. Written by Arthur C. Clarke.]

At the risk of belaboring the obvious, the greatest of all science fiction films.

Easy Rider. [Dennis Hopper, 1969.]

Most Magical Musical Moment: crossing the bridge as Hendrix plays “If Six Was Nine”.

Aguirre, the Wrath of God. [Werner Herzog, 1972.]

Favorite line by greatest madman: Klaus Kinski, drifting down the Amazon to oblivion in the company of a horde of monkeys, shouting into the jungle “Ich bin der Zorn Gottes!”

Pink Flamingos. [John Waters, 1972.]

I have always thought this the perfect date movie: an exhibit of

chicken fucking, cannibalism, tabloid journalism, white slavery, artificial insemination with a turkey baster, hermaphroditism, incest, castration, a three hundred pound transvestite eating poodle shit, and a guy with a singing asshole; the most disgusting movie ever made, and probably the most original. — Was anyone ever more brilliant in his solution of the problem of inventing himself as a director and an artist? — Was there an independent cinema before Waters? — Could any city but Baltimore, the home of Poe and Barth, have spawned him?

Enter the Dragon. [Robert Clouse, 1973.]

Best martial arts film, and the best athlete ever to appear in a motion picture. — Really, it can't be anything or anyone else.

The Final Programme. [Robert Fuest, 1973. From a novel by Michael Moorcock.]

Swinging London meets sci-fi. — Most baffling disappearance: Fuest made the two Dr. Phibes movies and this in quick succession, and then more or less vanished from the scene.

Jeder für sich und Gott gegen alle. [Werner Herzog, 1974.]

One of the two occasions on which I got to the end of a film and said to myself, "This is a work of genius." — The other was *The Exterminating Angel* [Luis Buñuel, 1962].

A Boy and His Dog. [L.Q. Jones, 1975; from a story by Harlan Ellison.]

Best moral, though it reads better than it shoots:

It took a long time before I stopped hearing her calling in my head. Asking me, asking me: *do you know what love is?*

Sure I know.

A boy loves his dog.

Love And Death. [Woody Allen, 1975.]

Historical note: since this first appeared before the advent of video and the concomitant demise of the extended run, I saw it four times in the theater the year after it came out; and, on each occasion, when the story arrived at the point at which Woody was trying his hand at writing poetry in front of the fireplace and penned the lines “I should have been a pair of ragged claws/Scuttling across the floors of silent seas” — regarded them for a moment — and then crumpled the sheet in frustration and exclaimed “Too sentimental!” — I was the only guy in a packed house who was laughing. — Well, I’m still laughing. — His funniest movie.

Eraserhead. [David Lynch, 1977.]

David Lynch announces his genius to the world with the weirdest movie ever made, which also occasioned my best one-line review: emerging from my first viewing, sometime in the early Eighties, I turned to my girlfriend, who had insisted that we see it, and said “This is what we used to call Bad Acid.”

Animal House. [John Landis, 1978.]

The best of all possible punchlines: “Senator and Mrs. John Blutarski.” — Another election year looms, and once again this line will return to haunt us.¹⁶

All That Jazz. [Bob Fosse, 1979.]

Every once in a while you look at a movie and see instantly how the inspiration came to its author — *Lost in America* [Albert Brooks, 1985], for instance, was obviously an elaboration of the vision of a pullback from a spinning wheel to the tune of “Born to be Wild” to reveal a Winnebago: the degeneration of hippie outlaw into yuppie bourgeois, in one fluid camera move. — But this was the most striking instance: the autobiographical elements notwithstanding, I’m certain that the genesis of this picture must have come at a cocktail party where Fosse, whom one must picture as an aggressive drunk, declared that you can make a musical comedy about *anything*. — “No you can’t,” said someone else. — “Yes you can,” he repeated — loudly and emphatically, in the other guy’s face. — “No you can’t,” persisted the other. “For instance, you can’t make a musical comedy about death.” — “Hmmm,” said Fosse.

Apocalypse Now. [Francis Ford Coppola, 1979.]

War as cinema; cinema as war. (As Godard might have put it.) — Either way, never surpassed; see the companion documentary *Hearts of Darkness* [Fax Bahr and George Hickenlooper, 1991].

¹⁶ Alas, this prediction proved prophetic.

Blade Runner. [Ridley Scott, 1982.]

Or, Frankenstein in *Metropolis*. — Second-best science fiction movie of all time.

The Adventures of Buckaroo Banzai Across the Eighth Dimension. [W.D. Richter, 1984.]

In that gripping must-read analysis of industry standards, *Screenplay* [1979], the noted theoretician of the scenario Syd Field inserts by way of illustration of his principles the first ten or fifteen pages of a work-in-progress about speedboat racing, which is (not to put too fine a point upon it) unspeakably bad. I've always suspected that the first ten minutes of *Buckaroo Banzai* were written in deliberate parody of this atrocity, though I've never been able to confirm it. — And (incidentally) who the fuck is this putative author Earl Mac Rauch? I still wonder half-seriously whether Thomas Pynchon might have written this under a pseudonym.

Lifeforce. [Tobe Hooper, 1985.]

After an expedition to Halley's Comet unwittingly awakens slumbering evil, the Earth is assaulted by naked vampires from outer space, and unless someone can persuade Mathilda May to put a towel on the planet is doomed. — Well, it all had to end sometime. — Most impossibly beautiful female ever to appear in a motion picture.

(Apparently based on a novel by Colin Wilson, erstwhile existentialist Wonder Boy and one of my early favorites, though every time I've attempted to reread *The Outsider* in recent years I've found some excuse to blow it off after a chapter or two. Tastes change.)

Sherman's March. [Ross McElwee, 1986.]

The author travels with tape recorder and camera through the American South, trying unsuccessfully to put together a documentary about Sherman's march to the sea; what he ends up with instead is a series of interviews with his present and former girlfriends, interspersed with hilarious soliloquies filming himself in motel rooms and meditations on the fate of the Earth. — I never know how to explain this to someone who's never seen it before save by reference to a *Lampoon* parody of *Newsweek* that hit the stands in the early Eighties; one whose cover featured a couple of models striking theatrical postures of alarm above the legend: "Nuclear arms...and terrific legs! The atomic threat to America's covergirls." — Weird but true, this is Ross's theme exactly; though he somehow manages simultaneously to be more serious than the *Lampoon*, and funnier — the scorched earth, e.g., is the scar left upon his libido by Southern womanhood. — Without question the greatest home movie ever made; and that rarity, an entirely original work of art.

Amazon Women on the Moon. [John Landis et al., 1987.]

Favorite musical performer: Don "No Soul" Simmons.

Barfly. [Barbet Schroeder, 1987. Written by Charles Bukowski.]

Mickey Rourke in the part that made him my most lasting role model; before this I still labored under the delusion that you had to change your underwear occasionally in order to be irresistible to women.

(Bukowski's thinly-disguised fictionalization of the making of this film — titled, appropriately, *Hollywood* — is, incidentally, one of the funniest accounts of the film industry ever written.)

The Dead. [John Huston, 1987.]

I sat all the way through this, admiring it as what was self-consciously the last work of a great master, wondering, the while, how he could possibly translate the conclusion of the story into film — for it is, put simply, one of the finest passages in English prose, and it seemed impossible to end the movie any other way than by simply quoting the whole thing in voiceover. — And, in fact: that’s just what Huston did. Completely uncinematic, but perfect.

The Princess Bride. [Rob Reiner, 1987. Written, but of course, by William Goldman.]

Second-greatest moment in the history of movies: “My name is Inigo Montoya. You killed my father. Prepare to die.” — Also a hundred other great lines. You have to hand it to Goldman, when his game was on no one could touch him.

Slave Girls From Beyond Infinity. [Ken Dixon, 1987.]

After escaping from a prison ship in a stolen space cruiser, babes-in-skins Elizabeth Kaitan and Cindy Beal crashland on a jungle planet and find themselves prisoners of a mad huntsman who makes sport of human prey: *Bikini Island* meets *The Most Dangerous Game*. — The best of all possible B movie titles, save possibly for:

Cannibal Women in the Avocado Jungle of Death. [J.F. Lawton, 1988.]

Intrepid ethnographer Shannon Tweed, assisted ineptly by chauvinist pig White Hunter Bill Maher, ventures into the Heart of Darkness in search of the lost feminist scholar Doctor Kurtz. — Lawton wrote and

directed this under the pseudonym of J.D. Athens, and later used his own name when he wrote *Pretty Woman*; I think he had that backwards.

The Adventures of Baron Munchausen. [Terry Gilliam, 1989.]

Best Botticelli.

Bail Jumper. [Christian Faber, 1990.]

Most preposterous road movie: a guy and a girl on the run from the law brave tornadoes, floods, a plague of locusts, a meteor shower, and a tidal wave that destroys New York City.

(A nod as well to the female lead, the remarkable Eszter Balint, star also of Jim Jarmusch's *Stranger Than Paradise* though of practically nothing else.)

The Killer. [John Woo, 1990.]

Surely the most beautiful bloodbath ever filmed, unless that was

Hard Boiled. [John Woo, 1992.]

which contains the three greatest gunfights ever filmed, culminating in the apocalyptic battle in the maternity ward which took a month to choreograph and shoot. — Also: the incomparable Chow Yun-Fat; and the greatest — well, George Miller — all right, one of the two greatest action directors alive.

Begotten. [E. Elias Merhige, 1991.]

No one could top *Eraserhead*, but give Merhige credit, he came closer than anyone else. — God disembowels Himself with a straight razor and posthumously impregnates Mother Earth; complications ensue.

Delicatessen. [Jeunet/Caro, 1991.]

A visual style so striking that I sat all the way through the credits in the theater to verify my guess that it had to have been shot on Agfa film stock. Which was certainly a first. Second only to *The Wicker Man* [1973] in the Best Snails category.

Prospero's Books. [Peter Greenaway, 1991.]

A reinterpretation of *The Tempest* which features three magicians: the original author, who was writing about himself; Gielgud in the starring role; and, of course, the guy behind the camera. — The first film I saw in the theater three nights in a row. I still wonder how Greenaway got away with it.

Chaplin. [Richard Attenborough, 1992.]

Most remarkable effort by an actor in a biopic: Robert Downey, Jr. — He portrayed the greatest performer ever to stand up in front of a motion picture camera,¹⁷ and somehow escaped without humiliation. (But did he win the Oscar? Don't be ridiculous.)

¹⁷ Regrettably, I haven't enough expertise in the pornographic cinema to say who was best lying down.

Lessons of Darkness. [Werner Herzog, 1992.]

The greatest modern documentary artist makes a film about the aftermath of the first Gulf War, shot from a helicopter above the burning oil fields of Kuwait. — At that not necessarily his craziest stunt, given that he once landed on the island of Guadeloupe after it had already been evacuated in the hope of filming an erupting volcano. (See *La Soufrière* [1977].)

Under Siege. [Andrew Davis, 1992.]

Best girl popping out of a cake (Erika Eleniak).

Police Story Three: Supercop. [Jackie Chan, 1992.]

Greatest stuntman of all time. We won't bother with a silver medal. — Also, his female counterpart: Michelle Yeoh. As has entered into legend, she had to learn to ride a motorcycle during the production, before she could jump it onto a moving train.

Nonetheless, for the sake of argument (one which should precipitate a fistfight that will take a month to choreograph) the best Jackie Chan is

The Legend of Drunken Master. [Jackie Chan, 1994.]

Favorite stunt (here repeated several times): climbing a wall without using his hands. What the fuck.

Dead Man Walking. [Tim Robbins, 1995].

Hugest closeups. — My hand to God, there is a shot in this movie in which the iris of Sean Penn's eye is in focus and the tip of his nose is not.

Lost Highway. [David Lynch, 1996.]

Darkest movie. Cf., e.g., the shot in which Bill Pullman starts down a hallway and literally disappears before he gets to the end of it. (This reproduced exactly a nightmare I had at the age of four: Lynch should be arrested for walking in *my* sleep.)

My Sex Life. [*Comment je me suis disputé... (ma vie sexuelle)*]. Arnaud Desplechin, 1996.]

The complexities of the love life of a Parisian philosophy professor require three hours even partially to disentangle. Most cogent argument for the thesis that I missed my calling.

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Pi. [Darren Aronofsky, 1998]

Best crazy mathematician movie.

Run Lola Run [*Lola Rennt*. Tom Tykwer, 1998.]

Perhaps the closest approach to the cinematic ideal of the continuous chase. (Two other candidates are *The Warriors* [Walter Hill, 1979] and *The Terminator* [James Cameron, 1984].)

Being John Malkovich. [Spike Jonze, 1999. Written by Charlie Kaufman.]

This reminds me of nothing so much as the remark of a disbelieving mathematical colleague about Lawvere and Tierney's use of topos theory to provide new foundations for mathematics: "It is not so much that they proved these things, but that they dared to believe they were provable." — How could Jonze and Kaufman have imagined it could be possible to film this screenplay?

Also, latest ascendant to the title of Best Screenwriter, though this really doesn't do him justice: Charlie Kaufman is in a world of his own and a class by himself.

{...}

Director I'm going to miss the most: Kubrick. Try to think of a movie he made that wasn't great. (All right, maybe the last one. But otherwise.)

Greatest reason for optimism about the future of the cinema: Cocteau said film could not become an art until its materials became as cheap as pencil and paper. — He should have added, and when its distribution becomes as simple as tearing a sheet out of a notebook and handing somebody a sketch. — That era is now almost upon us.

Most obvious instance of divine inspiration (see Whitehead on Pythagoras): Heisenberg's invention of matrix mechanics. You do not

understand something until you know how the inventor thought of it; really not until you have reinvented it yourself. In this sense I can understand how Newton invented the calculus, how Fermat thought he had proved the last theorem, how Einstein found the connection between gravitation and the curvature of space, how Schrödinger discovered his wave equation. But what Heisenberg did remains an utter mystery.

High-water mark of the American empire: between Kennedy's speech of September 12, 1962, in which he announced the race to the Moon, and July 21, 1969, when we won it. In re which Thucydides provides the address the Corinthians delivered to the Spartans:

You have never considered what manner of men are these Athenians ... how utterly unlike yourselves. They are revolutionary, equally quick in the conception and in the execution of every new plan ... They are bold beyond their strength; they run risks which prudence would condemn; and in the midst of misfortune they are full of hope. ... When they do not carry out an intention which they have formed, they seem to themselves to have sustained a personal bereavement; when an enterprise succeeds, they have gained a mere installment of what is to come; but if they fail, they at once conceive new hopes and so fill up the void. With them alone to hope is to have, for they lose not a moment in the execution of an idea. This is the lifelong task, full of danger and toil, which they are always imposing upon themselves. None enjoy their good things less, because they are always seeking for more. To do their duty is their only holiday. and they deem the quiet of inaction to be as disagreeable as the more tiresome business. If a man should say of them ... that they were born neither to have peace themselves nor to allow peace to other men, he would simply speak the truth.¹⁸

¹⁸ Jowett translation.

Most satisfying occasion on which Life imitated Art: the End of History, 1989. In Berlin the Munchkins danced upon the ruins of the Wall, carrying Dorothy upon their shoulders and singing “Ding, dong, the Witch is dead”; meanwhile in Washington, Oz, the Great and Powerful, cowered in his tent. — Which was more potent: a national-security apparatus that schemed for decades behind a curtain, or the truth in the hands of the people?

Dude of the century: Sean Penn and Keanu Reeves have made impressive statements, but I’m sticking with Belushi.

Most influential stoner: Kesey, of course; Hunter Thompson is a distant second. (Leary by comparison was an inconsequential poser.)

Special joint appreciation to Paul Feyerabend and Richard Feynman for the finest noses for bullshit of any men who ever lived.

Dude of the century (no really): Albert Einstein. I mailed this one in shortly after I learned to read. — Place and show to Ludwig Wittgenstein and Groucho Marx. — Honorable mentions for Louis Armstrong, Jean-Luc Godard, Alexander Grothendieck....

Chick of the century: Marie Curie. — The only member of the human species ever to have won Nobel Prizes in two separate scientific disciplines is still — a Polish woman.

The three reasons I would pull out of my ass if I had to convince the Galactic Patrol not to toast the planet down to bedrock with a gamma ray laser and start over again from bacteria: the general theory of relativity; the Ninth Symphony of Beethoven; Uma Thurman.

Predictions for the new millennium: alien artifacts found beneath the Pyramids of Mars will provide the clue that leads science to a cure for flatulence; Elvis will return in glory to sit at the right hand of the Father; after a moving scene staged at the foot of the Parthenon in

which Shannon Whirry declares her faith in me and confesses her undying love, I will get a job and pay off my debts.



—613—

Zelig (3/28/2000)

I do the calculation in my head one evening in the early Eighties as I am running through the bathrooms in an office building I have taken on as a part-time job — an IBM building, this is the closest I will ever get to working for them — and realize I have cleaned ten thousand toilets.

It occurs to me, once again, that my time and energy might be better employed. And it occurs to me, once again, that I don't have a lot to say about it — I file applications, they go straight to the dumpster.

The problem isn't so much that I have only had stupid jobs. I know I am supposed to lie about my experience. The problem is that I don't know what lies to tell.

Lies are assorted in a résumé, and I don't have one. I don't even know what they are supposed to look like. There are books, but of course those are worthless. I used to try to compose them, but the effort was invariably futile. On the last such occasion I labored half the night. When I staggered into the living room to inspect the fruits of my labor the following morning, I found a half-empty bottle, a gigantic ashtray stuffed with butts, a heap of crumpled drafts piled two feet deep upon the floor, and a single sheet still in the typewriter, with the first sentence of the cover letter left unfinished. "This is a waste of good whiskey," I said. And went looking for aspirin.

Pause for another ten years. One afternoon I wake up and the internet has been invented. I log into Usenet, download two hundred résumés from the jobseekers' forums, study them intently, analyze their form, systematically catalogue their vocabulary of buzzwords, and compose one of my own. This takes another couple of years because I am meanwhile delivering one or two million¹⁹ newspapers and staggering about comatose most of the time, but the end result is indeed a work of art. Many who see it, Dog, for instance, say it is the best résumé they have ever read; certainly it is the best piece of fiction I have ever written.

Cautiously, I begin to deploy it. The difference is astounding. Immediately I begin to get interviews.

Of course, since I have never had interviews before, this only introduces me to a new set of problems.

In part the difficulty is that I am trying to pass myself off as an expert programmer, though this is something which, lacking motivation, I haven't practiced or even thought about for several years. I tell myself I lost interest because I had no hope of finding employment (true), and that my actual ignorance of the matters with which I am

¹⁹ Not an exaggeration.

pretending to be conversant is irrelevant, since when I *was* interested I picked everything up overnight. Of course all that was before I quit smoking and lost the ability to concentrate, but I assume money will prove an adequate substitute for nicotine. Still, all this is hypothetical.

Mainly, however, it is the problem of the fork.

There is a generic OSS movie, which takes the following form: the protagonist is introduced and recruited [Act One]; he²⁰ is trained at a secret facility, and drilled in the essentials of disguising oneself as a native of Occupied Europe [Act Two]; parachuted behind enemy lines, he performs prodigies of daring and sabotage [Act Three]; this culminates in the crisis which precipitates Act Four, the moment when, eating dinner in a restaurant among Germans, he makes the mistake of holding his meat with the fork while cutting it with the knife in his right hand, and then switching the fork to his right to raise it to his mouth. He has been warned against this in his training, but habit reasserts itself at the wrong moment. — Suddenly all eyes are upon him. Suspicion has been building, but this is the moment of discovery. — He has been unmasked. The dungeons of the Gestapo beckon.

Lacking a spy academy where coaches could teach me how to deal death with either hand, build a radio from palm fronds, and emanate the reality distortion field that is the talent of the true bullshit artist, I am left to my own feeble devices, and try unsuccessfully to maintain the illusion that I have been moving among professional circles throughout my adult life. But inevitably I make some slip, and reveal myself to be an imposter — a fraud without credit cards or health insurance, someone who cannot conceive of making more than ten dollars an hour. — “Curses,” I mutter. “Foiled again.”

²⁰ As explained in many accounts, e.g. *A Man called Intrepid*, these agents were quite as likely to be female, and I might have made a better spook if I had been. But you play the cards that you're dealt.

In principle it seems possible that, given enough interviews, I might learn from experience, and improve my performance. But every failure is another crushing humiliation, added to the burden of decades of the same, and it gets harder and harder to psyche myself up for another try.

Moreover it is a problem that most of the local opportunities are in Boulder, a small town where everyone knows everyone else; it has to seem odd that no one knows me, and if I keep splashing about in this small single puddle everyone soon will. Thus the search expands to the world beyond the walls of the city: to the coasts, where all the jobs are anyway, and even abroad, where I delude myself I can pull a Von Stroheim in reverse, and pass for an exiled aristocrat. — Gradually I begin to focus on positions for scientific programmers, about which I can bullshit much more convincingly; I have never really been in the same room as a computer that runs Unix, but I can solve partial differential equations, describe the Carnot cycle, explain the molecular basis of the mechanism of inheritance ... surely this can be made to count for something.

Calendar montage here while five or ten thousand²¹ applications are filed and I abandon and rededicate myself to the quest several times. — Presently we arrive at the new year, decade, and millennium, and there are some people in Berlin shopping for a programmer to help them look for gravitational radiation.

Jackpot.

Here is the perfect problem, the perfect situation, the perfect escape hatch.

They write me back, set up a phone interview, and then another, a conference call at two in the morning where I confront the entire

²¹ Again, this is not an exaggeration. I kept track of all of it in a mail directory labelled "Zelig", which repeatedly had to be flushed when it grew unmanageably large.

group. I summarize what I have been able to glean from reading a few review articles on the subject,²² ask questions, make some preliminary observations, and then remark, weakly, at the conclusion of the conversation, that talking to people on the other side of the world in the middle of the night about making measurements accurate to one part in ten to the twenty-third power is an uncanny experience, something like being abducted by aliens. — They laugh. — And in a day or two, propose to fly me across the Atlantic to talk to them in person.

So here is the crisis. Is this really possible? I have been pretending as hard as I can that all this can actually work, but long, bitter experience has taught me I am no more likely to get a job like this than I am to fuck Shannon Tweed. — Fantasy and reality cannot intersect in such a fashion, it is contrary to reason and nature.

Still, I have to go through with it.

So the first question goes to the German girl from whom I obtained Boris and Natasha: does she really takes her dogs with her every time she goes back to Europe? — Yes, as it turns out. It's easy to arrange. — So my family can go with me. One worry less.

Second question, do I understand their problem? Because I think I do, and if so I already know how to solve it. — I scrape the rust off my programming faculties and attempt a few simulations. They look good, though I'm still not entirely sure.

Third question, can I persuade the bureaucracy that I exist? Because I have to get a passport, and they keep refusing my applications on the grounds that my documentation is inadequate. — After a couple of weeks of this I finally pack two dozen items into a manila folder,

²² At the time the definitive survey was: K.S. Thorne, "Gravitational radiation"; in S.W. Hawking and W. Israel, eds., *Three Hundred Years of Gravitation*. Cambridge: Cambridge University Press, 1987; pp. 330-458. (They were, incidentally, amazed that I had read it.)

including two or three versions of my birth certificate (the original was rejected), several expired driver's licenses and old picture IDs, bank statements from the days when I was still permitted an account, phone and utility bills dating back to the Seventies, and a couple of elementary school report cards, and mail them all to the insufferable bitch in Seattle who has been loudly and persistently denying my petitions. — She gives up at last. — And mails it all back! I would have been sad to lose that fifth grade class photo.....

I get a ticket. — Buy a few marks for spending money; Gauss is on the ten-spot, that seems a favorable portent. — Stuff some shit in a backpack. — Hop a plane, and cross the ocean in the dark. — Too nervous to sleep, I read Wald,²³ the entire book, fast — still rusty, but it is coming back to me, I can see how all this falls together —

And here I am. South of Potsdam, out in the country. A tiny village a mile or two away. The woods seem strange, haunted; the uncanny forests of the Brothers Grimm. In a neighboring marsh I espy a pack of wild boars.

So I am jet-lagged, of course, but as in all things I somehow succeed in inverting it: my internal clocks are still set to Colorado time, but to a schedule where I would be sleeping all day there and staying up all night. I instantly revert to the walking-dead state familiar to me from my years on the night shift: completely exhausted, but unable to fall asleep.

So basically I don't close my eyes for a week, and spend most of that time, as ever was, on my feet, walking. I take the train into town and walk all over Berlin, dark capital of the twentieth century, epicenter of the Cold War, the sleep of reason that bred monsters, and this is what the world looks like when it awakens from the nightmare: the Wall has vanished, Checkpoint Charlie is a museum, construction cranes are everywhere, there are Mercedes dealerships on the Friedrichstrasse.

²³ Robert Wald, *General Relativity*. Chicago: University of Chicago Press, 1984.

The billboards are in English. The first thing I see when I disembark at the Alexanderplatz is a Burger King. I walk down Unter den Linden to the Brandenburg Gate, pass on the guided tour of the Reichstag, stroll through the Tiergarten. — No leash laws here, German dogs are so well-behaved they follow their owners about at heel with nary a word of command. Clearly Boris and Natasha will need a remedial semester in obedience school. — But all right, admit it, it's love at first sight. If only this could work.....

It doesn't help that there is a clock radio with an alarm in my room. The alarm is shut off but beeps loudly, exactly once, every night at midnight just as I start to drop off; precisely the little electric shock I need to keep me up all night. Lying in bed in the dark I ponder this conundrum, and realize why it works this way: if the alarm is not otherwise set, the default is all zeroes, midnight. Moreover there are two conditional control structures with which the clock might have been programmed: {while (alarm condition holds) do (beep)}, and {do (beep) while (alarm condition)}. Obviously the idiot who coded it used the latter by mistake, and so it runs through an execution cycle before checking to discover the alarm is set to off.

But I don't have a watch and wouldn't be able to tell the time if I unplugged the fucking thing. So I have this reminder that the world is now at the mercy of badly written computer code to keep me awake all night. There must be a moral here.

Meanwhile my zombie Doppelgänger is introduced to the group and subjected to a lengthy cross-examination. This might go better, but.....

....their main problem, as I already understand, is a question of time series analysis...

The existence of gravitational radiation, as predicted by the general theory of relativity, has been confirmed indirectly, by observations of the decay of the orbit of a pair of neutron stars.²⁴ To observe it directly, however, will involve measuring local strains in the fabric of spacetime many orders of magnitude smaller than any effect hitherto detected. They propose to do this by performing a Michelson-Morley experiment with an interferometer comparing the transit times of laser beams which will bounce back and forth²⁵ in perpendicular arms four kilometers in length; the differential caused by a passing wave should be about one ten-thousandth the diameter of a proton. The tunnels will be insulated, kept in total vacuum, suspended from shock absorbers to filter out seismic noise down to the level of the farts of passing birds, but even after the exercise of experimental ingenuity beyond my power of comprehension, and correlating the data from two such instruments placed more than a thousand miles apart, they will be left with a lengthy time series of measurements in which a faint periodic signal will be buried under a mountain of white noise. There are specific expectations regarding the shapes of the waveforms they are looking for, but algorithmic wizardry will be required to solve the implicit problem in pattern recognition.

So I have thought about this, and cycled through several ideas. — The trivial solution would be to employ one of the standard tricks, e.g. the

²⁴ This is the so-called Hulse-Taylor binary, discovered in 1974 and the occasion for the award of the 1993 Nobel Prize in physics. One of the stars is a pulsar, which emits radio bursts every 59 milliseconds; the existence of the other was inferred when the arrival time of the pulses was found to vary with a period of 7.75 hours, implying an orbital motion. The two objects are of comparable size, about 1.4 solar masses, roughly 1-5 solar radii apart, and are spiraling in toward one another at about 3.5 meters per year. This represents gravitational energy radiated at the rate of 7.35 times 10^{24} watts. See Weisberg, J. M., Taylor, J. H., Fowler, L. A., “Gravitational waves from an orbiting pulsar”, *Scientific American* **245** (4): 74–82 (October 1981). The most recent estimate is that the observed decay differs from the Einsteinian prediction by at most two parts in a thousand, see Weisberg, J. M., Huang, Y., “Relativistic measurements from timing the binary pulsar PSR B1913+16”, *The Astrophysical Journal*, **829** (1): 55 (21 September 2016).

²⁵ A few hundred times. The *effective* length of the arms is more than a thousand kilometers, as indeed it has to be.

Hough transform. This seems to be the extent of their progress. — Another involves a variation on the old S-matrix gambit of turning the complex plane into a treasure map; this goes nowhere fast. — A third involves a combination of the Fast Fourier Transform and the genetic algorithm, which is too cute not to work on something, though maybe not this.

But what fixes my attention, finally, is a variation on a method I have employed previously.

Once upon a time, in a previous consulting gig, I was faced with the problem of interpreting a mass of extremely noisy data, a time series of levels registered by a float in a tank; the object was to figure out whether or not the tank had sprung a leak. — Complicating factors included temperature, air pressure (the liquid itself was essentially incompressible but trapped bubbles would not be), sticking floats, malfunctioning sensors, dysfunctional electronics, idiot engineers who refused to answer questions about these and other issues because it might compromise the pose of infallibility that gave them authority, and the certainty I wasn't getting paid. — Typical graphs had jagged discontinuous shapes that were impossible to interpret. One day, however, by some miracle I was handed a neat printout of — I know not what, the story they gave me was clearly bullshit — I think it must actually have represented the current delivered by a battery. This decreased smoothly with time, and at first glance I said to myself “Wow, that's a decaying exponential.” — And at second glance: “Wait a minute: how do I know that?” — meaning: how could I program a machine to recognize that? — So I spent a couple of days making up filters to smooth the data, computing elaborate tables of finite differences that would allow me to reconstruct the exponential function, as it were from the bottom up. Nothing worked. — But then I inverted the question, and asked how I might solve the problem from the top down; with an integral rather than a differential principle. — And here I remembered Wheeler's famous advice, that you should

never try to work a problem unless you already know the solution.²⁶
— It was clear what that meant in this context: I had a natural guess at the answer I expected, a combination of a linear decrease with an exponential decay; this depended on three parameters; I should be able to fit a curve of the desired form to the data by the method of least squares. When I did so, the agreement was remarkably exact.

So what was the mathematical picture here? you had a space defined by a set of variables, and wished to find the point at which a certain functional took its minimum. You could think of this as a landscape, in which you were trying to find the lowest point, and how you went about it depended on what kind of landscape it was. In the best case, you had something like the drainage basin of the Mississippi, where you could, in principle, expect that a marble dropped anywhere upon it would roll into the Gulf of Mexico — you could divide the map into cells, and from any cell you need only look around you, move into the neighbor that was lowest, and continue until you found the bottom; this was the usual presupposition in the application of variational principles to physics, and in my original problem it had worked perfectly. But in the worst case you would have something like the infamous golf-course potential, an undifferentiated level surface with a few holes hidden in it, and no better strategy than to search every cell individually, and pick the one which was deepest. (Which is why glasses keep seeking a crystalline state, but never quite arrive there: the search never terminates.)

It appears to me that what they are doing, translated into my language, presupposes the golf course model: they divide their search space into bins, each corresponding to an ordered n -tuple of values, and look in each one to see which is the best fit. Experimenting with

²⁶ What Wheeler meant was that it is much easier not to get lost in the details when guided by intuition. — Which is to say, “Use the Force, Luke.” — The Jedi Master among physicists was Fermi, who was famous for his ability to guess the answer to almost anything with a calculation on the back of an envelope. A striking contrast to the current tendency, which is to throw an acre of computers at everything.

models of the problem, I have verified the suspicion that this is necessary with regard to one of the variables, but not with the others. Thus though in one of the many dimensions of the space it is necessary to look under every rock, in the others it is possible to, as it were, allow the problem to roll downhill. — I have tested this hypothesis on synthetic sample data. And sure enough, I can find the needle in the haystack without looking under every stalk.

To make this precise, however, would require a more exact model of the waveform they expect. I know these have been computed for events like the coalescence of two black holes, but don't know what they are.

So there is still ambiguity. But I think, not much.

But does my zombie Doppelgänger deliver this lecture? — No. — In part because this has now devolved into an out-of-body experience, but also because, by now, I am all-too-familiar with the seven ages of consultancy: [1] you are asked to solve a problem about which [2] you know nothing; nonetheless you do some research, stare at the matter somewhat off-center for a couple of days, and [3] rather diffidently propose a novel solution, predictably [4] met with ridicule, which [5] you don't know how to counter, since the scoffers have been working on this for years, and you've been working on it for a week. Thus [6] you give up; reluctantly, since you still think you're right, an opinion which [7] is confirmed six months later when you discover your solution has been adopted, though of course [a] you don't get credit — indeed your name is still a byword for eccentricity and incompetence — and [b] you don't get paid.

So I keep my mouth shut. — Which may be a mistake, but probably is not. — There is a faint possibility that originality will find its reward at last, that they'll like the idea, admit that I am right, let me up the

ladder into the treehouse. — But what I am realizing here is something different, the fundamental flaw in my strategy: I have been betting all along that I can find a group of people smart enough to realize how smart I am, and here indeed they are. But unfortunately it is also obvious this means they are smart enough to figure out I am telling them a pack of lies. — If they check on anything, literally anything, starting with the opening line of my résumé, where I subtract ten years from my age,²⁷ they'll know I'm not who I claim to be.

True, this is exactly the job I should have been able to get in 1975. But it didn't happen then, and so it cannot happen now. The quest is doomed to failure, yet again.

God, it's fun though.

It is a high-wire act, and I am sure to fall. But I remember the tight-rope walker in *Zarathustra*, and anyway when you've broken every bone in your body already, who cares? — No wonder Evel Knievel was so fearless.

After the gang rape, I get passed from hand to hand. Gradually I restore a more convincing simulacrum of life and animation, and seem to make better impressions as I proceed. I go to lunch with the numerical relativity guy, and quiz him about his methods. Already in my mind I have moved on to his problem, and have a better idea there, too. Fuck me, I never learn.

My last stop is with the Big Boss. After we discuss the significance of his experiment, and agree that the consequences are sure to be

²⁷ The half-life of a programmer was about seven years, meaning that even someone in his early forties would be presumed to be old and decrepit. The idea that someone past fifty who had never actually held a job in the field might be employable was, of course, completely risible.

revolutionary, that some discovery as epoch-making as that of the quasi-stellar objects must lie just over the horizon, he asks me whether I am prepared to make this great existential leap, to live in a foreign country. — I tell him my father's family is German, so in a way this is the Old Country; maybe an adventure, maybe a homecoming. — I don't tell him that at the moment I am wanted by the police for accumulated crimes of poverty²⁸ and would be perfectly happy to skip the continent to stay ahead of the posse, because why confuse the man. — Instead I say that so radical a move is bound to disclose unanticipated novelty, and tell the story Feyerabend related in his autobiography,²⁹ that when he first came to the New World the two things in American culture he fell in love with at once were professional wrestling and Busby Berkeley musicals. — The Boss says he can't believe Feyerabend didn't know wrestling was fake. I tell him Feyerabend loved to pull peoples' legs, those of self-styled philosophers especially, but here may have been serious because his training as a dramatist had imprinted him with a love of spectacle.

And I have one as well, I suppose, though I incline toward the comic. — So who's the joke on this time? I ponder that on the flight back.

²⁸ Always, in essence, the crime of being unable to afford a lawyer.

²⁹ *Killing Time*. Chicago: University of Chicago Press, 1994.

Berlin Alexanderplatz (4/1/2000)

Johnny Cocktail enquires how the trip went. I reply as follows:

A long weekend in Berlin? I thought it would be only that, until the mysterious blonde holding a copy of the *International Herald Tribune* bumped into me, seemingly by accident, as I stood gawking in disbelief at the giant onion-on-a-stick which towers over the Alexanderplatz. Only after the black helicopters materialized and mysterious figures in mirrorshades leapt out to seize her did I realize that something had been slipped into my pocket... . — As for the rest of it — the chase through the sewers of the Old City, the audience with the Emperor of the Rats, the escape by balloon over the ramparts of Potsdam as the slaving hounds of the secret police bayed behind me, the trek through Bohemia, sleeping by day, crawling through the mud and slime of the rice paddies by night, the month recuperating on the Riviera at the villa of a certain Polish Countess — well, suffice it that Jerry Bruckheimer has optioned the story, and after a couple of rewrites and a quick polish you can expect to see Nicolas Cage and Angelina Jolie mouthing my dialogue on a big screen near you sometime in the none-too-distant future.

As for the rest of the rest of it: though I managed to land and get off the plane, everything else still seems to be up in the air. We'll see.

... He is uncharacteristically impressed by my overnight mastery of the elements of molecular biology. I assure him there is nothing to it, and explain to him the secret of the faux-polymath: one must bore easily.

(Nietzsche [*Twilight of the Idols*]: “I want, once and for all, *not* to know many things. Wisdom sets limits to knowledge too.”)

Scenario (1/1/01)



Le Petit Soldat. [Jean-Luc Cocktail, 2K++.]

The credits roll over an assortment of bikini-clad babes, cavorting in a variety of tropical settings — white beaches, tall palm trees, silly cocktails with little umbrellas on the swizzlesticks, big bright smiles, big white teeth, deep blue water, deep brown cleavage.

With every provocative pose, a clicking noise and a freeze-frame. Somebody is taking photographs. Somebody is taking a lot of photographs.

Beneath, the voice of our protagonist and narrator:

“Man is for woman a means, said Nietzsche; and asked then: what is woman for man?”

Babes standing on their heads. Babes walking on their hands along the beach. Babes juggling chainsaws.

“A real man wants two things, he said: danger and play. Therefore he wants woman as the most dangerous plaything...”

Babes modelling army fatigues, bearing automatic weapons. Babes piloting helicopter gunships. Babes with bazookas, wearing howitzer brassieres. Their smiles are terrifying.

“You are going to women? Do not forget your proton guns.”

Astronautical babes in bubble helmets and bikini spacesuits contest the advance of a phalanx of bug-eyed monsters.

“The magazine of extreme sports,” the narrator remarks, “should also be the magazine of extreme poseurs.”

A couple of babes in bikinis are fencing. With a grand climactic

flourish, they simultaneously run one another through. Their boobs explode.

Three girls balanced on surfboards smile for the camera — which, apparently mounted on a helicopter, swoops rapidly up and away to reveal an oncoming tidal wave. The girls are abruptly propelled out of shot.

Eight scuba girls wrestle with an octopus. It rips off all their tops at once.

“Build your lovelives under Vesuvius,” he suggests.

An abrupt cut. The film stock changes to grainy black-and white.

Winter. Gray sky. Leafless trees. A plume of smoke from a lone chimney.

Whip pan to:

A border checkpoint. A convertible pulls up to the gate. A uniformed guard inspects the papers of the driver.

The driver wears a hat and trenchcoat, and smokes an unfiltered Lucky Strike. It is, but of course, John (Wild Buffalo) Craig.

He continues his narration in world-weary tones:

“I only found it harder as time went on,” he says. “the endless photo shoots with the endless procession of beach bunnies — young, nubile, filled with boundless lust...”

He glances down at a stack of photographs on the seat beside him. Holds one up: Laetitia Casta patting the trunk of an elephant, with an inscrutable expression. Shrugging, he tosses it back onto the pile.

“...prisoners of the weakness of the flesh.”

He lights another cigarette. Perhaps he is reflecting that there are worse prisons than the flesh of Laetitia Casta.

“But this was only my cover: sports photojournalist, football correspondent for the *Review of Sporting Metaphysics*. In reality I was an agent in the secret war...”

Montage: a rather different series of stills, these in grisly black and white — scenes of war, famine, pestilence, death. Shots of John in jungle settings with Che Guevara characters. Shots of John with a Bowie knife between his teeth. Wrestling alligators. Torturing bankers.

“...the war that pitted good against evil, east against west, Buffs against Huskers...”

Shots of John in the endzone coolly taking photographs as several tons of steroid-swollen beef heave back and forth about the goal line.

“Of course, what was reality.”

Let the camera pull away as the convertible zips down the highway through an autumnal European landscape in the direction of a distant city.

“The war was endless now, and international. And so was the football season. Just when you thought it was over, just when you thought the last faux-platinum Sears national championship trophy had been handed out to the last Gatorade-soaked coach in the last corporate-sponsored stadium in the last league on Earth, another one popped up and you had to go and cover it. And in between the endless swimsuit issues to be filled with endless photographs of endlessly cavorting

bimbos. It was always winter somewhere, and that meant it was always summer somewhere else. The seasons might have been ephemeral, but the antipodal oppositions, and the wants they created, were eternal.”

Abrupt cut to a chaotic montage: Zeppelins going down in flames.

“The facts, though incomplete, were undisputed,” John says. “It had happened during the halftime of the Adobe Acrobat/Stuffit Expander Fuchsia Bowl, just after the Suck.com trivia question and just before the Team Compliance consultants from the TCP/IP/JPEG 2000/IEEE 1394 Standards Bowl gave the Burger King update to the Valvoline Slick Presentation of the Morgan Stanley Dean Witter executive summary of the Tommy Trojan/K-Y Jelly Penetrating Analysis of the Half.com midpoint statistics. Details later obtained by imaging with the Danni’s Hard Drive/Victoria’s Secret/Double Bubble Toil And Hubble Space Telescope revealed the kind of problem that wasn’t going to fall for one of those superficial Dell solutions... .”

Something confusing transpires on what appears to be a microscope slide: infinitesimal amoeboid bugs, their tendrils flailing, surround a larger ovoid and tug it away.

“A crack squad of terrorist fanatics had hijacked the Sun Microsystems/Java Virtual Machine Leaden Zeppelin — the flying machine everyone agreed was destined to revolutionize transportation, as soon as it actually got off the ground. No one was sure how they’d managed to crank up the Imodium/GasAid inflation apparatus and get the blimp into the air, let alone escape unnoticed, even if they had managed to wind it out to its full design speed of four miles an hour. But somehow they had.”

John stares straight ahead, his hand upon the wheel. Behind him, out the window, the passing European landscape.

“It was my job to find it and bring it back, in time for the halftime

show at the American Beauty/Suburban Midlife Crisis Rose Bowl.”

Confused images of two teams trying to play football in a blinding blizzard of rosepetals. All the cheerleaders look like Mena Suvari.

“Many saw in this the hand of Microsoft. Of course, many now blamed Microsoft for the decline of the Holy Roman Empire and the vanishing of the cosmological constant. Still, it could hardly be a coincidence that the product launch of Balloons 2001 had been advanced and was now scheduled for the Natural Monopoly Bowl in Redmond April first...”

Footage of the famous adjustably-inclined Level Playing Field, which swivels and gimbals to ensure that the visitors must advance up a sixty-degree slope against Team Microsoft. A partisan crowd of geeks jeer and hurl the contents of their pocketprotectors at the underdogs.

As a marching band plays “Up Up And Away” and arranges itself into the semblance of a balloon the face of Gates appears on a hundred gigantic video screens ringing the stadium. “You will believe, that a brick can fly!” he declares triumphantly.

PR flacks with pointers gesture at their presentations with broad artificial smiles and paint a colorful picture of red, yellow, and blue balloons floating away upon the wind.

Meanwhile in the locker room a gang of geeks are frantically spraypainting concrete blocks. Microsoft managers are shooting the stragglers.

More stock footage: the Death March from Bataan; a plain darkened by the Mongol Horde; goosestepping soldiers of the Red Army passing in review. with the stolid gray men of the Kremlin watching them impassively.

In closeup, the heel of a soldier’s boot crushes a bug.

Rapidly jumpcut urban montage: bridge, river, plaza covered with pigeons, sidewalk newsstand, railroad station, etc.

A city street, in Geneva. John and another guy in a trenchcoat (but of course, this is Leonardo Garbonzo) stand in front of the Circle K, eating microwaved burritos and guzzling enormous soft drinks. They speak in code: — “The progress of this investigation has been most untriumphant,” says Leonardo. — “If we fail to discover the whereabouts of the Lost Zeppelin, we shall flunk most egregiously,” says John. — “The girl must know something.” — “Excellent.” — “But you will totally have to interrogate her.” — “This is most unacceptable.” — “She is totally insistent.” — “No way.” — “Yes way.” — “Women are a most heinous distraction.” — “But they serve a most essential evolutionary purpose.” — “No way.” — “Yes way.” — A telephone booth materializes from an electric-blue cloud of ionization. — “Whoa!” (in chorus.) — Two figures emerge. They look exactly like John and Leonardo, but are dressed like beach bums instead of spooks. — “How’s it hanging, John and Leonardo?” — “How’s it hanging, doppelgängers?” — “We us are present here in flashback from our most triumphant retirement in the south of France, in which we us recall the riddling twist of fate which led you us to accept the necessity of cross examining this most phenomenal babe to advance this most resplendent plot beyond this utterly non-non-heinous moment of second-act stasis.” — “No way.” — “Yes way.” The phantom doubles expatiate, relating an uncanny tale of giant robots, artificial intelligence, bubble helmets and blasters, and a conspiracy involving the Illuminati with Radar Men from the Moon. — “But thus to interfere with the events in one’s own past light cone entails the existence of a closed timelike curve which must violate causality most grievously, a possibility not admissible unless the local energy density is totally negative,” Leonardo objects. “This is most unacceptable,” says John. — Bogus John and Bogus Leonardo look at one another and exclaim “Wrong movie, dude!” They vanish in another blue flash of ionization with an electric trilling noise. — Unbogus John and

Unbogus Leonardo regard one another with wonder. — “Strange things are afoot at the Circle K.” — “You and I have witnessed many things, John, but none so bodacious as what just happened.” — They munch reflectively on their burritos. — The babe appears. She is Monica Bellucci. — “Whoa!” they exclaim in chorus. — “How’s it hanging, most excellent babe?” — “How’s it hanging, Johnny Cocktail?” — She adjusts her very savory décolletage. John’s eyes grow large. He crushes his Egregiously Big Gulp absently in one hand. — “This is a most world-historical babe,” he mutters. — “She embodies the evolutionary imperative most triumphantly,” agrees Leonardo. — “Catch you later, Leonardo.” — “Catch you later, Johnny Cocktail.” — John leaves with the babe.

A barren urban apartment, suggesting a motel room. Light enters from the window. The camera circles John and the babe one way as he circles her the other, taking photographs: a metatextual commentary, photographing the photographer. Or maybe it’s just another fucking quote from *Vertigo*.

As he snaps a series of fabulously artistic black-and-white shots which capture her in a variety of pensive poses, she tells a tale of action and adventure which necessitates a complementary series of flashback stills in lurid living color: “Abandoned in infancy when my parents, famed European archaeologists, were captured by piranhamouthed aliens, spirited away to a distant galaxy, and hurled into the maw of a black hole as sacrifices to the cannibal god, I was adopted by a tribe of gorillas and, in keeping with the legends held among them of an Italian goddess who would wield uncanny psychic power over the denizens of the animal kingdom, raised as Sheena, Queen of the Jungle, reigning over the lost city of Angkor Wat. Then one evening as I bathed in the Moon Pool sacred to Khonsu, attended by my handmaidens and my palace guard of beady-eyed man-apes, the lunar god appeared to me in a vision and told me to descend into the labyrinthine catacombs beneath the ancient temple, where I would find a ring, a key, a staff, a

golden book with silver leaves, a left-handed Stratocaster, a letter of introduction to the director of Marilyn Manson's videos, and a magic ticket for the teleportation chamber that would transport me to Hollywood by nanofax. Following these instructions to the letter, I was dismayed to discover that low-level errors in the implementation of the transmission software caused me to be transported instead into a nested series of selfreferential movies about making movies whose reference to Hollywood was, in consequence, not direct, but lay hidden within a baffling thicket of parentheses and quotation marks. Condemned, as it seemed, to an eternity of suffering/"suffering" in the postmodern cinema, I seized this chance to take a role within an improbable digression from an unmotivated narration within an abbreviated scenario posing as a review of a motion picture of an actual text of the French New Wave which though perhaps engaging was hardly coherent, since it offered me the opportunity to phrase these questions: What remains here of the supposed verisimilitude of film? What grounds our cinematic fabrications? What substance can they have, if they only refer to one another? If this is poetry, can poetry be truth? And what is truth?"

"Photography is truth," says John. "Film is truth twenty-four frames per second." — Shooting continuously as he speaks. — "Football is truth ten yards to the first down, four quarters to the contest, and three fifths of Southern Comfort to the postgame celebration."

Another series of stills, frozen poses: she hangs in midair, brandishing a pair of AK-47s like pompoms, her legs kicked out in a variety of splits. Her outfits are various, but include cheerleading uniforms and nuns' habits.

John has circled to the rear of the babe. The lens of his camera is directed at the lens of our camera. There is an instant when they photograph one another: a loud click and a flash —

An abrupt cut. John is coming out of a movie theater. On the

marquee, the legend: "Showgirl Instinct." Two figures in trenchcoats emerge from a nearby alley and surround him, one on either side. They gesture with their revolvers. John is shoved into the cab of a pickup truck and driven away.

"They cornered me as I was coming out of the theater," says John. "I wasn't paying attention to my surroundings. I was still trying to decipher that trailerpark peroration by the existentialist biker. What had Garbonzo been trying to say about Eszterhas? Or was it something Eszterhas had already implicitly said about the possibility of Garbonzo saying something about the reality of Eszterhas?"

Interior of the cab. He is seated between his captors.

"It was like Lemmy Caution always said. You never understand anything...then suddenly one evening, you end up dying of it."

Montage: highways, cornfields, railroad tracks; the endless expanses of the Midwest.

"They'd torture me first, of course. They were barbarians."

John stares out the window.

"Garbonzo told me when he fell into the hands of the executive recruiters they chained him in the front row of an empty theater and screened the three-and-a-half-hour director's cut of *Tango And Cash*...after the first hour or so his spirit had seemed to depart from his body and enter into the world beyond the screen, like Keaton in *Sherlock Junior*...Fred Olen Ray busted him out with the B-Girl Brigade, but for months afterward he'd awakened thrashing in the middle of the night, mumbling dialogue in the voice of Stallone... ."

Jumpcut montage: rusting farm equipment; windmill; abandoned silo; decaying barn; sheep wearing lingerie.

An old farmhouse, apparently abandoned. Within, a chaotic jumble. The walls are covered with pinups clipped out of the special Midwestern Barnyard Edition of the Victoria's Secret catalogue.

There is a perfunctory struggle as they haul John through the front room and into the bathroom. They stuff a gag into his mouth and handcuff him to the bathtub.

Montage: cattleprods, Zippo lighters, pliers. Forcefeeding him cans of Spam and pouring plastic cups of watered stadium beer down his throat. The television. The VCR.

"They tried fire, water, electric shock," says John. "Finally they just strapped me into a chair in front of the television and looped the Season 2000 Colorado highlight reel to play over and over again. I saw the last forty-seven seconds of the Nebraska game two hundred eighty eight times...They had to gag me at first, but toward the end there was no need...I was too weak...I thought I was screaming, I thought my voice could be heard, but it was no louder than a whisper... ."

Jumpcut footage of John, alone in a darkening room, struggling with his bonds in slow motion.

Fade to black.

"After that the hallucinations came," says John.

Jumbled visions:

Nebraska cheerleaders clad in scarlet. Their faces are porcine and sinister. Making oinking noises in an ominous lower register, they leap in slow motion, flail their arms, land heavily upon the ground, and lumber ponderously on all fours to group about a trough on the sideline.

Grainy old stock footage of the maiden flight of the Netscape Navigator Blimp 3.0. Panicking crowds stampede away from the wreck as it crashes in flames. Oh, the humanity.

Garbonzo in trenchcoat. "All we are is dust in the wind, dude," he says.

John, gun in hand, staggering through a hall of mirrors. Surrounded by images of a woman who is pointing her own gun at him. He fires at the images again and again. Mirrors shatter. Fragments of the woman's image tumble to the floor in slow motion and vanish.

John comes to. He perceives that he is alone in the house, which looks like it has been deserted for some time. The tables are littered with stale Twinkies and emptied cans of Spam. He gnaws the ropes from his wrists, looses the bonds about his ankles, staggers to the window, throws open the curtains. The light blinds him for a moment. He hurls a chair through the glass, and leaps out after it, a dark outline against the blinding white light.

Dusk. A small plane bores through the ether.

The camera (presumably mounted on a Whooping Crane) swoops in toward the cockpit, revealing our protagonist slouched behind the controls.

As a concession to aviator fashion, in addition to his signature trenchcoat he is wearing a leather flying helmet topped with goggles. This cannot possibly make him look like Rocky the Flying Squirrel.

"I was wondering why she'd sold me out to the Huskers," he is saying. "Greed? envy? angst? could I not provide a mate for her tormented artist's soul?"

He takes a reflective pull upon his cigarette.

“Or was it just that she knew I couldn’t get her on the cover of the swimsuit issue? I didn’t know. Perhaps now I never would.”

A hissing noise! Something hurtles past the windshield! Turbulence!

A strange light surrounds the plane. The engines fail. It seems to hang suspended in space, held up by some kind of tractor beam.

Weird flying creatures surround him: bodacious babes in bikinis, suspended in the air by propeller-beanies. They brandish very impressive rayguns.

These are the dreaded Bimbos of the Stratosphere.

His engines frozen by their tractor beams, John is forced down on Laputa, the Flying Island of the Bimbos. From here no man has ever returned.

He is dragged from his plane, forced to run the gauntlet, and heaved staggering into the brig, a windowless steel cage where he languishes for an indeterminate period. Communicating by Morse code with the occupants of nearby cells, he hears fantastic tales of time travel, alien abduction, cosmic conspiracy, and war among the planets, from which he gathers material for future story conferences with his producers.

“I don’t know how long they kept me there,” he says, “but it seemed like a century at the drivein.”

Finally he is unchained and hauled to the bridge for an audience with the Captain of the Bimbos (played by Nikki Fritz.) Flanked by her numerous entourage, she receives him with apparent hostility. Later, however, in a private audience, she offers him the opportunity to dwell with her upon Laputa as her consort and gigolo.

Negotiations are proceeding well until they stick upon insurance and portfolio issues.

Spurning her final offer as a negotiating ploy, he is somewhat taken aback when Ms. Fritz abruptly decides to post the opening on Monster.com, and, reverting to buccaneering type, makes him walk the plank.

“So much for your golden parachute,” she says.

He steps off into empty space!

The empty air. John’s falling body rockets into shot.

“Fortunately I’d managed to ingratiate myself to my jailer with a few lessons in prose stylistics. She’d reciprocated with a few lessons in aerodynamics,” he says.

His leather flying-helmet has been retrofitted with a propeller. He gives the starter cord a pull. The propeller spins. He ceases to fall.

Drifting slowly away north by northwest, he lights a cigarette.

Exterior. Afghanistan. Dawn.

A vast barren empty plain. Mountains in the distance.

A tiny figure alone in the center of the emptiness. It is John.

Closer as he trudges onward.

He’s still wearing the propeller-beanie above his trenchcoat. The impact of this fashion statement is difficult to evaluate.

Series of dissolves, suggesting time and distance.

Fade in again upon John, still trekking through the desert.

Indistinct noises in the distance. Loud rhythmic grunts, like an army performing calisthenics.

John comes to the top of a ridge and pauses, obviously astonished by what he sees in the valley beyond. The camera swings around him to reveal:

A vast encampment, plainly the lair of an enormous terrorist army.

He produces binoculars from within his trenchcoat and studies the site assiduously.

But abruptly we realize, as does he, that he has been surrounded by an armed patrol.

Cut.

The guards lead him through the encampment, past practice fields where coaches shout instructions through megaphones at hordes of towelheaded linemen who are heaving blocking sleds around and ripping the heads off dummy quarterbacks. They pass rows of tents covered with the logos of the many corporate sponsors of terrorism; at first the names amaze John, but then it all begins to make a sick kind of sense. Finally they pass a stadium, where under camouflaging tarpaulins he finds the missing blimp at last, tethered to a mooring mast.

They take him to an imposing tent, obviously that of the leader. One of the guards pulls a silken rope hanging at the entrance. A distant bell is heard within.

A dramatic pause. Many of the army have gathered, to witness the

judgment that plainly lies at hand.

Four bellydancers armed with automatic weapons appear first. They take their stations, two on either side of the entrance.

A tall figure, beturbaned and clad in flowing robes, emerges from the tent.

He has a familiar aspect. He may remind us of — dare we say it? — the former offensive coordinator of a once-formidable college football program.

John regards him with wonder. “Dog?” he asks.

The leader does not respond immediately. Plainly it costs him a great effort to recall his former life.

“Once, perhaps,” he says. “Now I am known as...Osama bin Dog, the Sword of Allah!”

There is a roar of approval from his assembled army; they raise their AK-47s over their heads and shake them. Many demonstrative rounds are fired into the stratosphere. Birds, aircraft, and cometary debris drop from the sky.

Acknowledging his followers with waves and bows, the Dog beckons John to follow him back into the interior of his tent. Here the bellydancers serve glasses of the native beverage, a strange golden bitter tea distilled from the agave plant (which grows here in profusion), and the Dog relates a tale replete with twists, surprises, and discoveries whose narrative thread John finds difficult to trace — perhaps because of its complexity, perhaps because of the intoxicating power of the native beverage, perhaps because the bellydancers provide so consistent a distraction — whose elements include the baffling case of amnesia which left him stumbling as a door-to-door computer salesman through the Balkan civil war, the miraculous

recovery of his memory in Sarajevo when a street urchin played “Misirlou” on a broken balalaika, his return from exile, the subsequent premiere of his Concerto for Rocket Launcher in D Major at the Van Halen Competition in Paris, Texas, its uncertain reception by the critics, the black-tie reception that degenerated into a food fight, the days and nights of soulsearching (aided somewhat by controlled substances) that followed, and the pilgrimage to Culver City, California — where, standing over the grave of Mack Sennett, he swore vengeance upon the bankrupt civilization that had abandoned and betrayed him.

There followed his negotiations with venture capital. His return to the steppes of central Asia. His ability to recruit first-rate talent with pre-IPO incentives. His vision of comic jihad against the godless West.

Montage:

A fat lady runs through a dinner party, firing a gun randomly into the air. Servants and guests run into one another and fall down.

A large open car full of policemen with walruslike moustaches waving their nightsticks in the air flies off the end of a pier and into the water.

The leaders of the World Trade Organization greet one another with joybuzzer handshakes.

An army of martial artists drills on a goldlit beach at dawn, performing precision exercises in unison — hurling cream pies, kicking one another in the backside, slipping on virtual banana peels and turning backflips.

Swelling music. The Dog, standing atop a mountain as the camera swoops in toward and around him, throwing his arms out to embrace the world, bursting into song:

The hills are alive

With the sound of slapstick...

“Really,” says John hastily, interrupting this flashback before it can go any further. “But what is the role of football?”

The Dog explains that Islamic law prohibits television journalism, programming languages which violate referential transparency, and sexual congress with nonconsenting ruminants. It does, however, permit unrestricted defensive contact on bump-and-run pass coverage and the flying wedge.

His recruits scrimmage constantly. In time they will return in glory to rule the Big Eight, Ten, Twelve, or Forty-Two, as the case may prove.

“I realized then that this was it,” says John. “The long-sought nerve center of international comic terrorism. The brain trust that had trained the infamous shock corps that had attempted to blow up the World Trade Center by lighting farts in the parking garage. The fiends who had planted whoopee cushions on the bench of the Supreme Court. The cleaners who handled the blue dress, the consultants who formed the environmental policy of the Bush administration, the detectives who trained the Boulder police.”

Clapping his hands, the Dog summons an entourage which accompanies the two of them as they tour the camp, serving drinks from a bottle which John now strongly suspects contains Jose Cuervo Gold.

The Dog points out the athletic facilities, the practice fields, the weight rooms, the stadium skyboxes for highrolling supporters, the library, the supercomputer complex, the genome-sequencing laboratory, and the volcano into which they toss human sacrifices. “Virgin blonde cheerleaders would be best,” says the Dog, “but one must make do with the materials available.”

With the computers concealed within the tents, the Dog explains, his

legions are preparing to face the Pepsi Computational Challenge: the simulation of the collision of a black hole with the Writer's Guild. The resultant Hawking blackbody radiation of mutant highconcept scenarios will enable the production of motion pictures that will evoke shame even from Jerry Bruckheimer...biological warfare in a new key...weapons of mass distraction.

"Today this stinking desert," proclaims the Dog. "Tomorrow the world!"

His followers, who have massed in the course of this exposition, roar their approval. They fire a few thousand more rounds into the air.

"And the blimp?" John asks.

"A joke, of course," says the Dog. "It will never fly. If Allah had meant for us to have automatic memory management, he would not have given us hard pointers. — No, it was a ruse. They needed you out of the way while Eszterhas and his henchmen fixed the Indonesian XFL playoffs and kidnapped Bellucci."

"Eszterhas?!" John exclaims, recognizing the name of his sworn enemy. "The Hungarian fiend?"

"Of course," says the Dog. "Cheney made him head of Covert Ops in return for delivering Cleveland. And promised him the babe, of course. She'll star in *Showgirls Two: Ninja Boogie*."

"Now I understood everything," says John, over. "The babes, the blimps, the bowls, the betatesting of the brick balloons, the bogus beach bums, the bodacious Bellucci, the boffo box office for the *Basic Instinct* sequel, the bleating, the beating, the beanies, the bellydancers, the broken balalaika in the Balkans, *The Brain from Planet Arous* as a product of black hole entropy; everything but the Bush administration, which would never make sense. If only Nikki and I

hadn't quarreled over my stock options. This could only end ugly."

"So," says John to the Dog. "That's the way it is."

The Dog shrugs. "A temporary alliance only," he says. "At the moment we need Eszterhas and his Hollywood connections. When the moment is right, we'll crush him like a bug. But for now —"

"I can't be allowed to leave," John finishes.

"My sponsors would object," the Dog admits. "I'm looking for a quarterbacks coach. We need you here. But if not —" He indicates the fiery pit.

"Sorry," says John. "But you know how it is."

"Well," says the Dog. "It's the volcano then."

He gestures. The guards escort John to the brink. The army gathers to witness the execution.

"Have you any last wishes?" asks the Dog.

John ponders this. "Peace on Earth, but a plague upon the ruling classes. The death penalty for anyone who uses the apostrophe to form the plural. More Tequila."

The Dog hands him the bottle. John takes a lengthy pull.

"There wasn't any particular design involved," he says. "If nothing else I figured the fucking beanie would save me again. But when I handed the bottle back to him..."

He drops it.

It plummets into the abyss.

Without thought for consequence, the Dog lunges after it.

John stares, fascinated.

A long shot of the falling Dog, his robes swirling about him as he recedes from sight into the bottomless pit of the volcano.

Calling out as he falls: "Need....salt...need...limes..."

The Islamic horde stand stunned for an endless pregnant moment, gazing into the fiery pit.

Then as a man they lift their weapons and shout: "Osama bin Cocktail!"

In a speech not lacking in Churchillian grandeur, John refuses the leadership of the army. His is not the path of political activism, he explains. No, he is an intellectual terrorist; as such he must walk alone.

They are baffled. "But who will lead us? What are we to do?" asks one of the harem girls.

"Be excellent to each other and party," John advises.

And turning up the collar of his trenchcoat, he walks away into the desert of postmodernism.

Fade out.

*Questions about genomics (3/17/2001)*⁵⁰

Not having thought about it for very long, the questions I have about genomics at this point are basically philosophical: — If the cellular machinery is like a computer, and the genome is like a program, what kind of language is it written in? — Presumably it would have to be something very very simple, something like the lambda calculus (in which you do everything with one operation - the minimal instruction set, as it were). — As I said, when you generate code automatically in genetic-programming experiments, it looks very strange: Lisp expressions that are almost all parentheses, for instance; enormous chunks of syntax that code for equivalents of things that are easy in higher-order languages. Koza gives an example of an enormous arithmetic expression developed in one optimization problem which baffled him at first glance; then he noticed that the (known) exact solution required a factor of $\pi/2$ (or something like that), and the simulation had, in fact, succeeded in producing an approximation constructed with elementary operations from zeroes and ones. — Magic. — Other things look familiar: the regulatory mechanisms for gene expression are a form of conditional execution, obviously, and the multiple-reading mechanism (I seem to recall a known case where you get all 31 non-null readings of a gene with 5 segments) is just like the familiar `#ifdef/ifndef/endif` conditional-execution mechanism of the C preprocessor. — On the other hand there are fundamental differences: computer programs on the Von Neumann model of computation are serial in execution unless you explicitly provide otherwise; the genome is executed entirely in parallel by default, and how things get done in sequence is the mystery. (I.e., the exact dual.) — There are some identified bits of gene-controlling code in the genome; but how much is there really? a lot? not much? Is it like a large program with data files (genes) and files of instructions (something unidentified and mysterious)? Is there an equivalent to

⁵⁰ To Richard Strelitz.

making a function call? or assigning a value to a variable in the symbol table? (There are mechanisms for doing this without doing it, if you catch my drift, and they'd be very difficult to recognize if you didn't know that's what you were looking at.) Can one part address another? (I.e., are there pointers?) Obviously it's a kind of goto that skips the intron to take you from one exon to the next, but could there be more general forms of jump? etc., etc.

Just as a wild guess, if there were higher-order instructions in the genomes of the more complex vertebrates, it would explain a lot. We seem to have about twice as many genes as *C. elegans*; a nematode with (exactly!) 959 cells. Which has, says the consortium, 18266 genes. — Maybe there's more to it than meets the eye. Maybe there's code to organize the developmental sequence. Or something.

Contra, if a modest increase in the number of instructions does produce an enormous increase in complexity it wouldn't be the first known example of a phase transition. — So? —

(I sit here thinking about this and I can't make my mind up: if you scale up the size of a project from building a house to building a skyscraper, or from building a car to building a battleship, not simply the quantity and organization of the tools you use but their size and complexity gets bigger — you use tools to make tools to make tools. But the relationship of the size and complexity of the finished product to the size and complexity of the original plans isn't obvious. — Stuart Kauffman says somewhere that across many species there's a linear relation between the square root of the number of genes and the number of cell types; whether this particular relation is true or not, there must be rules like it which are.)

In general the quantity of junk in the code — repeating sequences, genes copied from other organisms that aren't expressed, parasitic code (they make it sound like genomic barnacles), etc. — seems weird, until you think about the way it all must have been thrown together, and then it makes perfect sense. If you write a long computer program

the way I usually do, improvising and changing your mind about what you're doing and what questions you're trying to answer as you go along, you end up with a large program file full of functions representing successive drafts of the same thing, stuff you abandoned but hold onto because you keep going back and modifying and cannibalizing it, etc. — a sort of subroutine soup, with little chunks of functionality that get reused over and over again, and out of which (by repeated copying and recombination) you construct the never-really-finished product.

This is probably a better analogy than the other obvious example that comes to mind, i.e., the (real) state of your disk drive — from which, actually, nothing ever gets thrown out, so that you have a huge redundant mess of partially-discarded records with a spaghetti of pointers linking the (small) physical blocks that are currently in use — because the invisible junk on your storage devices has no value (save when Lawrence Walsh subpoenas your erased email), but there are undoubtedly sequences that code for protein domains that have been recycled and recombined for the last two billion years.

Russell on Empedocles: “He knew that there is sex in plants, and he had a theory (somewhat fantastic, it must be admitted) of evolution and the survival of the fittest. Originally, ‘countless tribes of mortal creatures were scattered abroad endowed with all manner of forms, a wonder to behold.’ There were heads without necks, arms without shoulders, eyes without foreheads, solitary limbs seeking for union. These things joined together as each might chance; there were shambling creatures with countless hands, creatures with heads and breasts looking in different directions, creatures with the bodies of oxen and the faces of men, and others with the faces of oxen and the bodies of men. There were hermaphrodites combining the natures of men and women, but sterile. In the end, only certain forms survived.” — Again, the Greeks invented it. — And Russell, really, misses the point: everything survives; it's just that only certain forms at any given moment are being expressed. “Survival” is actually a kind of epiphenomenon... .

*Monk on Wittgenstein (7/25/2001)*⁵¹

... [his] book is pretty good. I have a copy. It's one of my standing jokes when I keep cash in the house that I stash it exactly at the beginning of Chapter Thirteen: "The Fog Clears".

⁵¹ To Richard Strelitz.

*Genre (7/29/2001)*³²

... strictly speaking the hardboiled detective story and film noir are distinct genres,³³ though historically they have had a tendency to overlap.

Female detectives are hardly unknown: Ms. Turner didn't do badly, obviously,³⁴ but there are relatively frivolous precedents like Miss Marple and Nancy Drew.

On the other hand, chicks who look good with a hangover are harder to come by. — Linda Fiorentino is an obvious candidate; that voice, that personality.³⁵ — She played a great femme fatale in *The Last Seduction* [John Dahl, 1994], but her role as a police detective in *Bodily Harm* [James Lemmo, 1995] is a better example: almost literally the negative image of a stock noir plot, with Daniel Baldwin (it would have to be a Baldwin) as the male version of the Bad Girl.

³² To Richard Strelitz. He had asked *en passant* why there weren't any good hard-boiled detective movies with female protagonists. Complications ensued.

³³ Paul Schrader in his essay "Notes on Film Noir" [*Film Comment* 8, No. 1 (Spring 1972), 8-13] famously maintains that film noir is *not* a genre, but rather a style (black and white cinematography, Expressionist lighting, rain-slicked city streets, the urban night), a mood (Depression PTSD), a literary tradition waiting to be exploited (hard-boiled crime fiction), and a period (the Forties and early Fifties) conducive to the creation of a Cinema of Doom. — Which is true, in a way, but irrelevant. — It is precisely the fascination of noir that it is peculiar among genres in that it was not designed, as westerns and musicals were, but represents a natural kind, discovered after the fact by French critics. No one knew they were making films noir, any more than Molière's Monsieur Jourdain knew he was speaking prose. It must say something important about genre that this one somehow contrived to invent itself.

³⁴ See *V.I. Warshawski* [Jeff Kanew, 1991].

³⁵ Legend has it she won her part in *Men in Black* [1997] in a poker game with Barry Sonnenfeld, and took him for twelve hundred bucks while she was at it.

The hardboiled genre has evolved away from the detective novel per se, though there's usually some kind of criminal melodrama going on. The most famous contemporary practitioner, obviously, is Elmore Leonard. His protagonists are usually male, but I think one of Tarantino's principal objectives in adapting *Jackie Brown* [1997] was to front Pam Grier as a hardboiled heroine. — Of course Pam Grier is a kind of genre in herself.

Kathryn Bigelow's *Blue Steel* [1990] was a conscious attempt to do Chick Noir; I believe Ron Silver played the Dude Fatale.

But all this is essentially postmodern, a commentary on the classical genre. Traditionally the protagonist in film noir has to be male, because you expect a kind of Oedipal triangle involving the male lead, an older and more powerful guy (Dad), and his much younger and very dangerous wife (Not Exactly Mom): *Double Indemnity* [Billy Wilder, 1944], *The Postman Always Rings Twice* [Tay Garnett, 1946],³⁶ *Lady From Shanghai* [Orson Welles, 1947]. — After that, as usual, there may be much variation: two linked triangles (protagonist is married to Good Girl and has Good Dad, femme fatale seduces him and persuades him to kill Bad Dad, he is torn between the first triangle [civilization] and the second [transgression], etc.), the more powerful man needn't be older at all and more like an evil-twin sort of elder brother (Mitchum and Kirk Douglas in *Out of the Past* [Jacques Tourneur, 1947]), the older guy can get killed before the girl even makes her entrance (*Detour* [Edgar G. Ulmer, 1945]), the good girl can be younger and the bad girl much older and predatory-maternal [*Sunset Boulevard*], etc. — In *Chinatown* [Roman Polanski, 1974] though there is an Oedipal triangle, an explicit sin of incest, and a grisly death scene in which Faye Dunaway is shot *through the eye*, the femme fatale is the victim, the detective is a helpless onlooker, and the

³⁶ The absurdity of the convention of identifying the director as sole author of a film is here illustrated, since both *Double Indemnity* and *The Postman Always Rings Twice* — both adapted repeatedly — see for instance Visconti's *Obsessione* [1943] — were based on novels by James M. Cain, who arguably invented the "film noir" genre all by himself.

(essentially omnipotent) father figure is triumphant. — In *Murder, My Sweet* [Edward Dmytryk, 1944], a version of Chandler's *Farewell, My Lovely*, Dick Powell³⁷ narrates the film in flashback with a rag over his eyes,

Obviously *Kiss Me Deadly* [Robert Aldrich, 1955] and *Touch of Evil* [Orson Welles, 1958] don't fit this template very well at all. You can argue that they come at the end of the cycle, when the genre had become self-conscious. But that raises the questions of what made it a cycle, and how the genre could evolve, about which wait a minute...

...and anyway there were exceptions from the outset. In *The Phantom Lady* [Robert Siodmak, 1944], based on a novel by Cornell Woolrich (who is another kind of genre in himself), an architect/engineer is accused of the murder of his wife, gets tossed into jail, and falls into a complete funk; his secretary, who has a thing for him, takes the initiative and conducts the investigation — though *pro forma* another male has to come swinging through the window at the last minute to rescue her when she finds the real killer. In another which Truffaut renamed *Mississippi Mermaid* [1969] the femme fatale doesn't kill the protagonist but does disappear with his money, and when he tracks her down he discovers he's still in love with her in spite of himself. Oops. — In *The Bride Wore Black* [Truffaut 1968] Jeanne Moreau tracks down the guys who (accidentally) killed her husband on their wedding day and whacks them one by one.. — Woolrich's male protagonists were the usual hapless cosmic victims, but his female protagonists were more like avenging angels.

In the postmodern cycle (roughly following *Body Heat* [Lawrence Kasdan, 1981]), Theresa Russell in *Black Widow* [Bob Rafelson, 1987] is the classic femme fatale, but the investigator (Debra Winger, not at all hardboiled) is female, and though there is a nod to the usual love triangle the real transgression here lies in the attraction between the

³⁷ Dick Powell was, incidentally, Chandler's own favorite Marlowe.

two girls: Russell is the object of desire, and Winger is a romantically obsessed stalker. Not the standard film noir, but I loved it nonetheless. (At least up to the bullshit gotcha ending.)

There's also the thriving modern genre of the erotic thriller, which generally stars Shannon Tweed as a psychiatrist who gets laid a lot. I haven't seen many of these since I stopped getting HBO.

But classically, if a girl's the protagonist and the storyline is dark, the natural tendency is to make it Oedipal with the genders flipped (the Electra complex, if you prefer): you marry her to an older guy whose first wife died under mysterious circumstances, put her in conflict with the ghost of her predecessor/rival (Mom?), drop the proceedings into a spooky old mansion that seems to be haunted, and turn the whole thing into Gothic. The mystery is essential here, as it is not in noir; there's also invariably some kind of older woman who runs the household, a female butler, who knows everything but won't tell. But the two genres have in common the sense that the protagonist is the victim of an unfathomable conspiracy beyond his/her grasp, the pawn of dark unknowable forces which he/she cannot control, etc.

It's not unknown for the two genres to intersect. One example is Hitchcock's *Rebecca* [1940, based on a novel by Daphne Du Maurier]; another is *The Spiral Staircase* [Robert Siodmak, 1946].

Another curious variant is Hitchcock's *Shadow Of A Doubt* [1943], written by Thornton Wilder: here Joseph Cotten is a male Black Widow, and his adoring adolescent niece — her age is significant — is the investigative protagonist who despite her overpowering attraction to him unmasks him as a serial killer. — Hitchcock always regarded this as his best American movie, and Wilder as the best writer he ever worked with; why they didn't collaborate again I don't know. — There is a white-picket-fence ambience to this (they filmed it in Santa Barbara) quite unlike the urban setting usually associated with noir; Lynch imitated it in *Blue Velvet*.

Notorious (written by Ben Hecht) is another interesting variant. (As the literary historians have remarked, if you look at the very best, you aren't seeing the formulas in their purest form, but in their most refined and ingenious developments.) — Here Ingrid Bergman is the protagonist, torn between Good Guy Cary Grant — who is, however, rejecting her — and Bad Guy Claude Rains, who wants her but is (aha) torn by the struggle between his better instincts (Bergman) and the dark Oedipal drive (his evil Nazi mother). — So this is in a way Gothic with a secondary character (Rains) as a kind of noir protagonist; like shifting the point of view one triangle over.

Sunset Boulevard [Billy Wilder, 1950] is actually Gothic with the genders inverted: Holden is the girl, Swanson the father/mother, Von Stroheim the butler who Knows All but Speaks Not. — The mansion, which somehow is the real protagonist in Gothic (see *The Castle of Otranto*, or *The House of the Seven Gables*, or *Alien* for that matter), is of course invariant.

The traditional Gothic has been brutalized into the contemporary horror movie — which, you've doubtless noticed, is about a young virgin whose friends are all getting killed as punishment for having sexual intercourse.

A lot of hardboiled detective stories are called film noir but really aren't, so far as I'm concerned. *The Big Sleep* is a good example. Bogart/Marlowe and the old General (Sternwood) are soul brothers, not Oedipal rivals, and though in the movie Bogart falls for one of the daughters (Bacall, of course), he's never taken in by her deceptions. It is the other daughter who is actively evil, but she never succeeds in getting her hooks into him. — Chandler's Marlowe isn't any doomed noir hero in any sense, he's a Galahad. — *The Maltese Falcon* on the

other hand certainly is film noir (in fact probably the first):³⁸ though Bogart/Spade is a detective, very dynamic, and never in any serious danger of being overwhelmed by some ineluctable web of events, you do have a classic femme fatale in Mary Astor (and the all-time classic kissoff in the “You’re taking the fall” speech); and poor Archer, though he doesn’t last out the first reel, is a kind of vestigial father figure — weak, ineffectual, and (it turns out) already cuckolded by Spade.

But the pure hardboiled crime thriller still has a lot going for it. — I think you’ve talked me into it: Linda Fiorentino (Angelina Jolie needs to add ten years before she can pull it off) as Mike Hammer in *My Gun Is Quick*; Jeanne Moreau gets a cameo. An old Pam Grier flick is running on the television in the background in her apartment. She has a boy-bimbo secretary. You get the picture....

{...}

Which should suffice to demonstrate the confusion that besets us trying to define film noir and its variants. — Another example: Marilyn Fabe³⁹ notes that in teaching neorealism she selects one of three films to typify it: *Open City* [Roberto Rossellini, 1945], *The Bicycle Thief* [Vittorio De Sica, 1948], and *Umberto D.* [Vittorio De Sica, 1952] — “the quintessential examples of Italian neorealism,” she says, and no one would quarrel with these choices. — “Before showing the film,” she says, “I try to define Italian neorealism by listing the stylistic and

³⁸ That title is sometimes awarded to *Stranger on the Third Floor* [Boris Ingster, 1940], but since with little effort the prehistory of the genre can be traced back to Expressionism, Lang in particular — in fact Peter Lorre is the eponymous Stranger, inevitably evocative of *M* — it seems pointless to pretend the designation of some particular exercise was “first” isn’t arbitrary. — E.g. curiously enough two earlier attempts at filming Hammett’s novel had been made, and neither is considered an instance of the genre. See the Introduction to *The Encyclopedia of Film Noir* (Westport: Greenwood Press, 2007), by Geoff Mayer and Brian McDonnell, for a discussion of this point.

³⁹ *Closely Watched Films: An Introduction to the Art of Narrative Film Technique*. Berkeley: University of California Press, 2004. Quoted from p. 99.

thematic features of the movement that the film will identify. The problem is that for each film I have to create a different list.”

And then, of course, after admitting neorealism can't be “defined”, she goes on to try to define it anyway, naming characteristics like shooting on location, the use of cheap black and white film stock, sound added in post-production freeing the camera to be mobile, a kind of a newsreel look, a focus on the lives of the lower classes, and the use of nonprofessional actors to lend authenticity.⁴⁰ — Though (as she points out) even in *Open City* Rossellini shot interiors on a stage set with three-point lighting, nothing in *Umberto D* was shot on location, and though *The Bicycle Thief* employs realistic images and naturalistic acting, in analyzing it she emphasizes the elements it shares with classical Hollywood cinema — the careful construction of the plot, continuity editing, devices which ensure narrative flow.

Similarly in defining “the Western” you would start with cowboys, horses, six-shooters, and wide open spaces; but then, for instance, there's a note-for-note remake of *High Noon* called *Outland* [Peter Hyams, 1981], starring Sean Connery, translated into science fiction and set in a claustrophobic mining colony on Io, one of the moons of Jupiter. — Again, *Star Wars* borrowed much of its genetic material from the Western, Ford's *The Searchers* having been one particularly obvious influence — indeed it would be hard to find any example of the American cinema that did not borrow some elements from the Western.

— etc., etc., etc. — Well, this is fun, but —

{...}

⁴⁰ Eisenstein in his early films disdained the use of professional actors; Robert Bresson though less obviously an advocate of socialist realism also deprecated “acting”, see his *Notes on Cinematography*.

What *is* genre?

Or rather: what is the problem in defining it?

The general problem (not very different in criticism or biology) consists in trying to decide what a species is.

The old idea, essentially the Aristotelian idea of essence and accidents, is that there has to be some kind of invariable template (the *nature* of X) common to all the instances.

There is an implicit appeal to something like the principle of the biological key: you ask a certain number of yes/no questions in sequence⁴¹ — “Skeleton? Internal/External?” — “Protagonist is pawn of Fate? Male/Female? Corrupt society? Oedipal subtext?” — or the like, and when you have followed the tree to the leaf you have classified the individual specimen exactly.

In the post-Scholastic era though the possibility may be presupposed it is rare for anyone to carry the program through consistently. Thus the most complete example I can think of is to be found in the elaborate figures classifying the types of depression that commence Burton’s *Anatomy of Melancholy*:

⁴¹ The next question depends on the answer to the one preceding, so this isn’t order-independent, as one would expect from the purely Boolean logic of set inclusion. An implicit pruning is performed. But the principle is the same.

I don't know that they have been written out (save by programmers trying to mechanize the procedure), but presumably a similar kind of decision tree is employed in medical diagnosis. (Or would be, if the logic of the process were not inherently fuzzy.) — Again, tree-structured directories representing schemes of classification have traditionally been much-beloved by “computer scientists” because [a] they're easy to code, so [b] no one ever seems to notice how poorly suited to the organization of data they really are.

Of course to the student of Wittgenstein it is obvious why this never works, He refutes the fallacy of essence in the *Philosophical Investigations* with a very simple argument: consider family resemblances, he says; even though any two members of a family may have the nose, or the eyes, or the chin in common, it's very easy to construct examples where no characteristic is possessed by all of them together. (The point is just that in a family of sets in which any two intersect the total intersection can still be void.)⁴²

So the curiously persistent belief that the mutual resemblance of any two members of some family of instances, say of films noir, must entail the existence of an essence, a set of properties common to them all, is the conceptual equivalent of an optical illusion. — In that sense “genre” does not exist.

{...}

⁴² The simplest example involves three individuals {a, b, c} and three properties {A, B, C}: suppose $\{x : A(x)\} = \{a, b\}$, $\{x : B(x)\} = \{b, c\}$, and $\{x : C(x)\} = \{c, a\}$; then any two of the sets intersect, i.e. a resembles b, b resembles c, and c resembles a, albeit in different ways, but the intersection of all three is void, i.e. there is no “essence” of membership in {a, b, c}. — Aristotelian intuition isn't completely deficient, however: the condition on a family of sets that any finite number must intersect is just what you require for the base of a filter; which (see Bourbaki) is the fundamental concept in the theory of convergence.

Parenthetically there is a companion fallacy, frequently encountered in psychology, in which a list of characteristics is compiled as “symptoms of X”, and then the presence *some* of them is taken as proof that they *all* must be present. (Because there must be an essence, and, etc.) Individual variation, of course, usually renders this conclusion risible, and no wonder psychology is a pseudoscience.

{...}

I left it at that until quite recently, when I read a little volume by Manfred Eigen⁴³ on chemical evolution, where to illustrate the idea of a consensus genomic sequence he gave the example of a set of strings of letters, each spelling something different and with no obvious common features among them, which when he converted each to a transparency and overlaid them — another triumph of “scientific visualization” — produced as the result a blurry but legible text. — This made a profound impression. Maybe Wittgenstein was too pessimistic.⁴⁴

⁴³ Manfred Eigen and Ruthild Winkler-Oswatitsch, *Steps Toward Life*. Oxford: Oxford University Press 1992.

⁴⁴ Note also that this is a nigh-on perfect example of someone providing a solution to a philosophical problem in such a precisely delimited fashion that no one notices.

THY ONIONS OR SPECTRA

TERROR GIV FOXRABIES

TEA OR WINE ORSPECIER

SHERRY GIN O TREMENS

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AHA QUIET GO APACHES

TREVOR!GINA FAST KISS

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Eigen's example.

{...}

Because genre *does* exist, after all. Film noir, for instance, was a real critical discovery, there is a large overlap between any two of the films in any of the canonical lists, and intuition points to something that the easy arguments refuting the easy arguments that maintain there must be some there there — that the extensional interpretation of the predicate is fallacious, for instance, because the use of the term presupposes the existence of some universal it designates — to which one replies, word does not entail thing at which it points — do not capture.

But one *can* recognize a film noir. One cannot program a Turing machine to output true or false on movie input (the set of films noir is not recursive), but a neural network could be trained to do so. (Though as with “subjective probability” in general, the result will be machine-dependent: different automata will give different answers. — How very like real life.)

So why is the problem so difficult in practice?

Again, the answer is fairly obvious.

Films are the creative products of writers, directors, cinematographers, production designers, They must be submitted to the approval of an audience, whose tastes evolve in response to what they have previously seen. So plots are subject to a (very rigorous) form of natural selection, and also to requirements of novelty — you can't do *exactly* the same thing twice, even if you wanted to the cast or the dialogue or the editing rhythm or the music or the film stock or ... would be different — and familiarity: there must be *some* continuity with what has previously been seen, or no one will understand it. Thus authors are continually taking previous successes apart, trying to figure out what made them work, and putting their elements back together in a novel-but-not-too-novel fashion. This is

entirely analogous to the process of genetic recombination, but in this case genetic drift is so rapid that species, in the usual sense, are almost nonexistent; because films mutate as rapidly as they reproduce.

Unsurprisingly, the greatest of English critics figured this out a long time ago. — Bloom helpfully provides this selection from Johnson [*Rambler* #125]:

Definitions have been no less difficult or uncertain in criticism than in law. Imagination, a licentious and vagrant faculty, unsusceptible of limitations, and impatient of restraint, has always endeavored to baffle the logician, to perplex the confines of distinction, and burst the enclosures of regularity. There is therefore scarcely any species of writing, of which we can tell what is its essence, and what are its constituents; every new genius produces some innovation which, when invented and approved, subverts the rules which the practice of foregoing authors had established.

Exactly.

The waste land (9/13/01)⁴⁵

In fact (responding to your suggestion of a couple of years ago) there's a scene at the beginning of Godard's *Pierrot le Fou* [1965], in which Belmondo, still the discontented bourgeois and not yet the reckless adventurer cruising around the south of France in a purloined Ford Galaxie with Anna Karina, attends a party to network with his business associates, and, in between little vignettes in which topless women recite testimonials to their Maidenform undergarments, converses briefly but memorably with a guy who claims to be an American director named Samuel Fuller (played by an American director named Samuel Fuller) — in Paris, so he says, to film *Les Fleurs du Mal*. Since Johnny Depp couldn't have been more than a couple of years old at the time, I have no idea who was supposed to play the lead. But the thought was there.

It's curious how people who aren't trained for the job (as stunt men are, for instance) end up falling. The guy in the photograph⁴⁶ plummets head downward; I studied the pose, which somehow seemed familiar, and finally remembered the Tarot card of the Hanged Man. — Not found by Madame Sosotris, famed clairvoyante. But here nonetheless. Unreal City indeed.

⁴⁵ To Scott Needham.

⁴⁶ That of the Falling Man. Since everyone has now seen it, and no one wants to see it again, there would be no point in reproducing it here.

Barbara Ehrenreich, or, The pretensions of cultural anthropology

The Three Kings interrogate Frank about the meaning of *John Wesley Harding*:

“And just how far would you like to go?” he asked and the three kings all looked at each other. “Not too far but just far enough so’s we can say that we’ve been there,” said the first... .⁴⁷

⁴⁷ Dylan’s liner notes for the album. He should have received the Nobel Prize for these alone.

Finny predators

Idly channelsurfing one evening⁴⁸ in the early Aughts, I happened across a book-pitch talkshow interview with the proprietor of a website devoted entirely to the subject of Jumping the Shark. This was a concept discovered by dedicated Slacker scholars of the sitcom while studying from their couches the rise and subsequent decline of the once-thriving kingdom of the *Happy Days*; the episode which was supposed to mark the transition from evolution to devolution was one⁴⁹ in which the Fonz, the Seventies faux-epitome of Fifties cool, Brando in *The Wild One* without danger or excitement, James Dean without vulnerability, Peter Fonda without drugs, somehow ended up on waterskis out in the middle of a lake, clad in his trademark black leather jacket, and did just that: he jumped a shark. — What a shark was doing in the Midwest and what narrative necessity drove the Fonz to attempt this feat I cannot say, but after all there are Some Things About Which Man Was Never Meant To Give A Shit. — At any rate once this inflection-point had been identified it had, apparently, been elevated to a universal principle, and during the fifteen minutes of its reign was applied to the explanation of the wider world, with illustrations down through history from Caesar's jumping the Rubicon to Clinton's jumping the intern.

Two then-recent examples which this scholar provided were, I thought, particularly instructive. — The first was the supposed bad faith exhibited by Al Gore in attempting to court the Spontaneity Vote by kissing his wife at the convention after receiving the nomination.⁵⁰

⁴⁸ Probably in September 2002.

⁴⁹ I should probably confess that I have never seen this, and likely never will.

⁵⁰ Nope. Didn't watch this either, just read Maureen Dowd's snark in the *Times* the morning after.

This made some sort of feeble sense, since the only thing I am sure of about the rules of human conduct is that it is always a mistake to pretend you are someone you are not; it ignored, however, that Gore's opponent was also pretending to be someone he was not, i.e. a competent person, that Gore won the election anyway and then had it stolen by the Supreme Court, which did permanent damage to the institutions of the Republic, and that several hundred thousand people met with violent death and trillions of dollars were flushed down a Mesopotamian toilet because no one seemed to be any more capable than our scholar here of distinguishing between matters of substance and superficial frivolities. — The second example was the career of Woody Allen, which ended, so our scholar claimed, when he married his child bride and thus made himself ridiculous.⁵¹ I thought this a very curious thesis, since he seemed to identify without a second thought Allen the film auteur and Allen the celebrity; in fact neither he nor his interlocutor hesitated for a moment in making this identification, as if it had never occurred to either of them that there might be any distinction between the two. — This suggested, not for the first time, that television had so completely destroyed the ability to distinguish form from function, appearance from reality, that it was no wonder the postmodern metaphysics had sprung up to “explain” it.

It was more than that, actually: there was some kind of general assumption that reality in general and Woody Allen in particular consisted of a set of twenty-second sound/video bites on, say, *Entertainment Tonight*. — But though everything must, inevitably, be interpreted in terms of some kind of story line — the shortest summary of epistemology is that we make sense of the world by telling ourselves stories about it — the story lines that can be presented on television are unusually simple and disjointed — serial: constructed by the repeated iteration of very minimal elementary components; a bit

⁵¹ More serious accusations have been made against Mr. Allen of late, but of course [a] I have no idea whether they are true and [b] the protests of flawlessists notwithstanding, these too are irrelevant to his merits as a filmmaker.

like polypeptide chains, only with less variation in the amino acids/ episodes composing them.⁵²

Thus the public perception of the character of Clinton, for instance, had never deepened despite the fact that, when you added it all up, he got a lot more coverage than Dostoevsky ever gave Ivan Karamazov. Rather, he became something like a recurrent character on a soap opera — a sort of symbol, Slick Willy, like a desktop icon, something instantly recognizable which eliminates the necessity for backstory: he made his entrance, like Art Carney in *The Honeymooners*, to a spasm of canned applause, and you knew immediately what he stood for; by definition, nothing he could say or do could surprise you. (No matter, incidentally, what he really did say or do.) — The key was that, unlike Ivan Karamazov, no matter how much you saw of the serial character you were never going to think about him for more than twenty seconds at a time: the bites were windowless monads which could not be combined, only concatenated.⁵³ — Thus Woody Allen had been turned into a semantic hook that could be inserted into a Leno monologue. Indeed this seemed ironic.

{...}

But I had to try the idea out anyway, and so the question occurred to me: when did the American empire jump the shark?

⁵² If you accept as a working hypothesis the three-act model of the motion picture scenario, in which the first act states the problem, the second act is conflict, and the third is the resolution, then the serial construction simply consists in interpolating an arbitrarily large number of second acts. (The machine-theoretic description of this is straightforward, simply a matter of adding to the rule [scenario] → {statement}[continuation][resolution] the recursion [continuation] → [conflict] | [conflict][continuation].) — A similar principle explains why, e.g., *Quixote* is (mainly) a romance and not a novel. [See also XV, (10/30/2000).]

⁵³ You could call this the abelianization of Eisensteinian montage: if you rearrange the snapshots, episodes of *The Honeymooners*, e.g., it makes no difference to the meaning of the sequence. — So all apparent character development cancels out. — Hollywood narrative is said to be restorative, but serial television narrative is *perfectly* restorative. It instantiates eternal recurrence.

It seemed to me that it was here: there is a beautiful speech, delivered in the second chapter of the second part of *Atlas Shrugged* (“The Aristocracy of Pull”) by the very dashing and romantic character Francisco d’Anconia,⁵⁴ with which he lays waste to a wedding party full of New York cocktail-circuit intellectuals who have been belittling the idea of merely “making money”. Quite the contrary, says Francisco, this is the noblest endeavor to which a man can turn his energies. Moreover, he continues, it is worth noting, in fact it is profoundly significant, that only Americans have ever talked about *making* money, with the connotation that economic activity is inherently productive, indeed creative. — I don’t think I ever appreciated the depth of this remark until much later, when I read Jane Austen and discovered that Mr. Darcy, for instance, “had” ten thousand a year, and realized that this choice of verb encapsulated the presuppositions of an essentially static agricultural economy in which land was the only form of capital⁵⁵ and all significant power lay in a very few hands. — How far we have come, I thought. — Foolishly. — Actually I think this is just it: that sometime in the none-too-distant future some linguistically-minded historian is going to look back on the decline of the American empire and place the turning point exactly at that moment, sometime during Reagan’s first term, when people stopped talking about “making” money and started talking once again, as they have for most of human history, about “having” money.

As for the sitcom scholar himself: there comes a moment in the history of every superficially clever idea in which its promoters take it one token over the line; and it is then that the Fonz steps onto the waterskis in his leather jacket and renders himself an absurdity. — So this was where “jumping the shark” jumped the shark: when the author

⁵⁴ Among the countless implausibilities of that novel, qua novel, is the idea that a guy this cool would have followed a stiff like John Galt into bullshit exile.

⁵⁵ Even Adam Smith still takes it for granted that land is the ultimate source of all wealth. As Piketty points out, the technologically-fueled economic growth we now take for granted was an invention of the nineteenth century.

commenced a book tour. Ripeness is all.

{...}

However I never thought of Ayn Rand as a prophet but rather as a romance novelist. I read *Atlas Shrugged* three times in high school,⁵⁶ and then moved on to Marvel comics, which were more entertaining and had greater philosophical depth. — Stan Lee and Jack Kirby may not have claimed to have known who turned the motor of the world, but then again they didn't pretend to derive the metaphysical necessity of predatory capitalism from the axiom "existence exists", and their heroes were not colossal assholes who gave the same stupid speeches over and over again for a thousand pages. — Among her literary peers Tom Clancy⁵⁷ may have shared these faults, but at least he knew military hardware and could write a page-turner.

{...}

Still: did I read *The Carpetbaggers* more than once? — No. She must have done something right. — And this is the appropriate comparison, since the game was given away the first time I saw a photograph of the young Howard Hughes, and instantly recognized him from her many descriptions. — "Ye gods," I thought, "*that* is Hank Reardon." — And in fact the whole novel is a bit like a love letter penned from a starstruck secretary to the head of the studio; where, incidentally, she was hired because Cecil B. DeMille liked her legs. — One might forgive her failure to foresee that this dashing embodiment of creative disruption would end up living in hermetic isolation in a series of hotel rooms and storing his shit in mason jars; but not the more serious oversight, the failure to perceive that such behavior is a natural

⁵⁶ In fact you could take that as a definition of "maturity": that moment, sometime after the conclusion of adolescence, when you pick up *Atlas Shrugged* again, read a couple of chapters, and say "Jesus, this woman never held a real job."

⁵⁷ Whom elsewhere I characterized as "the guy who finally got the population of China right on page 1128 of an 1137-page novel." He did have his limitations.

corollary of unfettered capitalism.⁵⁸ — That the Will to Power is mainly a pathology is, in fact, the principal lesson of human history. — The essential premise of these capitalist apologetics is always that the rich are rich because they are smarter and more virtuous than others. But it is the universal experience of mankind that the world is run by morally deficient imbeciles.

Or: power disrupts; absolute power disrupts absolutely; you gain the whole world at the cost of your soul.

{...}

After purchasing RKO in 1948 Howard Hughes fired three-quarters of the workforce and shut down production for six months while he investigated the political leanings of the remainder. — Also sprach Zarathustra.

{...}

The logic Rand applies to the economic world is not Newtonian but (explicitly) Aristotelian, a logic not of systems of differential equations expressing relations of mutual influence, but the naive picture of treelike chains of cause and effect — nothing can move by itself, it must be *pushed* — and her heroes are its perceived Prime Movers, who turn its wheels; her central metaphor is that of the motor that powers the world; her principal hero, Galt, is the inventor of a new engine which would revolutionize industry, if he were but willing to let the secret slip; the first example, significantly, that she gives of the root of production is the electrical generator — the dynamo. — Whose inventor, incidentally, was Michael Faraday, who never made a

⁵⁸ No doubt some people do want to get rich so that they can change the world, like Henry Ford or Steve Jobs. But anyone who's ever had to deal with a landlord or a boss knows that most people who seek wealth and power are insufferable assholes, and only want to get rich so that they can get away with behaving like Howard Hughes.

fucking nickel from it; no more than Alan Turing did from the invention of the computer, or Heinrich Hertz from radio.

Adam Smith in the 18th century already could find a hundred other people involved in the manufacture of a simple tradesman's jerkin, but Rand fantasizes that a few dozen Prime Movers all by themselves in a valley in the Rockies could create in miniature an ideal functioning 20th century manufacturing economy, a scale model of the world as they would remake it. — Because they hold the sky up on their shoulders. — This is not scientific but magical reasoning. (And of course completely ignores Smith's principal insight, that the foundation of economic activity is the principle of the division of labor.)

{...}

The belief in the gold standard illuminates the fallacy. Since value is *ex hypothesi* objective, it must have some absolute referent (a standard meter); there must be an *unmoved mover* — a bottom to the economic world, a first cause; the flat earth must rest on the backs of elephants, which stand upon a turtle. If the sky does not fall, it can only be because some Titan holds it up.

The power of the fixation is the more remarkable since it is so obvious that shiny metal is valuable only because people think it is.

The idea that all this is purely conventional and that value is referred not to some absolute standard but to a matrix of mutual relationships — that nothing is grounded save in a network of interactions — that trade and exchange depend in principle upon mutual agreement — is,

like universal gravitation, too subtle for an Aristotelian logic to grasp.⁵⁹

{...}

As embarrassing corollary: if money is the measure of real value, and must be *made*, or *earned*, if wealth must be *created*, then obviously it cannot be *inherited*. Wealth is meaningless if it is not an expression (nay, says Rand, the highest expression, the very essence) of the inherent moral and intellectual worth of the individual who possesses it; it is a *reward*, a certification of merit. — Moreover the concept of collecting rents on properties is extremely dubious, and the idea of, say, *transferring* copyrights or *selling* patent rights on pharmaceuticals is *prima facie* absurd. — In fact the capitalism of the romance novelists and the realities of money and power as we have known them for the last ten thousand years have little or nothing to do with one another.

{...}

It is the natural tendency of Late Capitalism to try to turn everything back into land — to restore the Jane Austen economy. To make everything into a plot of ground over which some aristo can claim the right of ownership, and thus collect rents; which right can be passed on to his heirs. (Thus the jihad against the inheritance tax, which as Jane Mayer explains⁶⁰ *was* set in motion by a posse of Prime Movers

⁵⁹ In fact according to Thomas Levenson (see his study of the South Sea Bubble, *Money for Nothing*, New York: Random House, 2020), Newton himself was the original relativist about the meaning of money: “Tis mere opinion that sets a value upon money,” he said. “We value it because with it we can purchase all sorts of commodities, and the same opinion sets a like value upon paper security.” This despite the fact that his principal struggle as Master of the Mint was to eliminate the arbitrage of English silver coins, which were worth more in gold in Paris than they were in London. — Locke, curiously enough, took the opposite position, and argued that “silver is a measure of a nature quite different from all other,” and had an absolute value independent of opinion.

⁶⁰ I could have sworn it was she, but admittedly can’t find the reference.

— in that case the Hershey heirs, who bankrolled the campaign against it to preserve their own lottery winnings.)

{...}

This particular fantasy (the valley in the Rockies) has infected those whom Rand has most influenced and inspired: Silicon Valley billionaires are busily buying up estates in New Zealand to which they plan to repair when capitalism is overthrown by war or revolution;⁶¹ where, presumably, the skill they have shown in exploiting the infinitely complex infrastructure that harnesses the efforts of a million people to make an iPhone, which will then no longer exist, will enable them to effortlessly rebuild civilization by launching IPOs for the manufacture of stone axes and oxcarts. — At least until the warlords come over the hill and take it all away from them. (Hasn't anyone here seen *The Seven Samurai*? let alone the collected works of George Miller...) — The libertarian paradise *already exists*: in Afghanistan, in the African states where governmental order has collapsed, in Mexico under the cartels; and it is the Hobbesian war of all against all, in which justice is the will of the stronger, life is solitary, poor, nasty, brutish, and short, and power devolves upon the party commanding the largest number of psychopathic thugs wielding black-market military hardware.

{...}

As for those many vivid descriptions of the slackjawed proles sunk in lassitude, unwilling to rouse themselves to self-improvement, trust me

⁶¹ See Evan Osnos, "Doomsday Prep for the Super-Rich," *The New Yorker*, January 30, 2017; also Mark O'Connell, "Why Silicon Valley Billionaires are Prepping for the Apocalypse in New Zealand," *The Guardian*, February 15, 2018. — Ironically, this was a plan I formulated myself, in high school in the Sixties, before I ever read Ayn Rand (admittedly after I had read Olaf Stapledon, who described a similar project in *Odd John*): to found an artist's colony in the South Seas; a perpetual lack of working capital and the retreat of nuclear anxiety led me eventually to abandon the project.

on this: a certain apathy, a sluggishness in responding to stimulus, sets in after you have been forced to add that third or fourth job to cover the shortfall after the owner of the trailer park decides to double the lot rent, just because he can. — And whatever your talent, your strength, your moral superiority, your *élan vital*, your indomitable Will to Power, there isn't a fucking thing you can do about it. Because as the folk wisdom has it, that *is* the Golden Rule: those who have the gold, make the rules. If there is any turtle upon which the elephants that support the flat Earth stand, it is surely this.

{...}

If someone owns your time, he owns you.

They call him Mr. Touchdown (12/18/02)

One unsolvable ranking problem that people are always trying to solve anyway, even though the results are inevitably ad hoc and arbitrary, is the question of how to order sporting franchises in order of merit. You would think that since the teams in question play one another this should settle the matter, but the outcomes of games always depend to a considerable extent on luck, and when there is a lot of interest bets are placed on the contests in advance, putting a premium on prediction; also bets are usually handicapped by a point spread, to attract money on both sides of the proposition, meaning that you would like to be able to predict plausible scores. Moreover though intuition speaks unambiguously in confrontations of the Bambi-versus-Godzilla variety, usually when two teams meet there is only indirect evidence of their relative strength provided by previous performances against common opponents, and this is often confusing; chains of the A-beat-B and B-beat-C but C-beat-A variety are commonplace, and often seem to show that A should be able to beat itself by a large margin.⁶²

Countless variables are involved in even the simplest athletic competition, and to make serious predictions you'd have to be able to deal with all of them, which is impossible. Pundits make predictions before every contest of significance, and make so many mistakes that there are secondary contests among groups of pundits, in which though the winners may do well the losers often score less than fifty percent, suggesting that successful predictions are not the result of critical acumen but dumb luck.⁶³

⁶² I refuse to exploit this as metaphor, since it strikes too close to home.

⁶³ Compare the periodic evaluations of the accuracy of stock market prognosticators; not infrequently a dart board is introduced as a control, and not infrequently throwing darts to determine buy or sell produces better results than listening to the self-styled experts.

Which makes it sound as though only some miracle of statistical algorithmics can save the day. But one morning while I was taking a dump⁶⁴ it occurred to me that the problem is trivial.

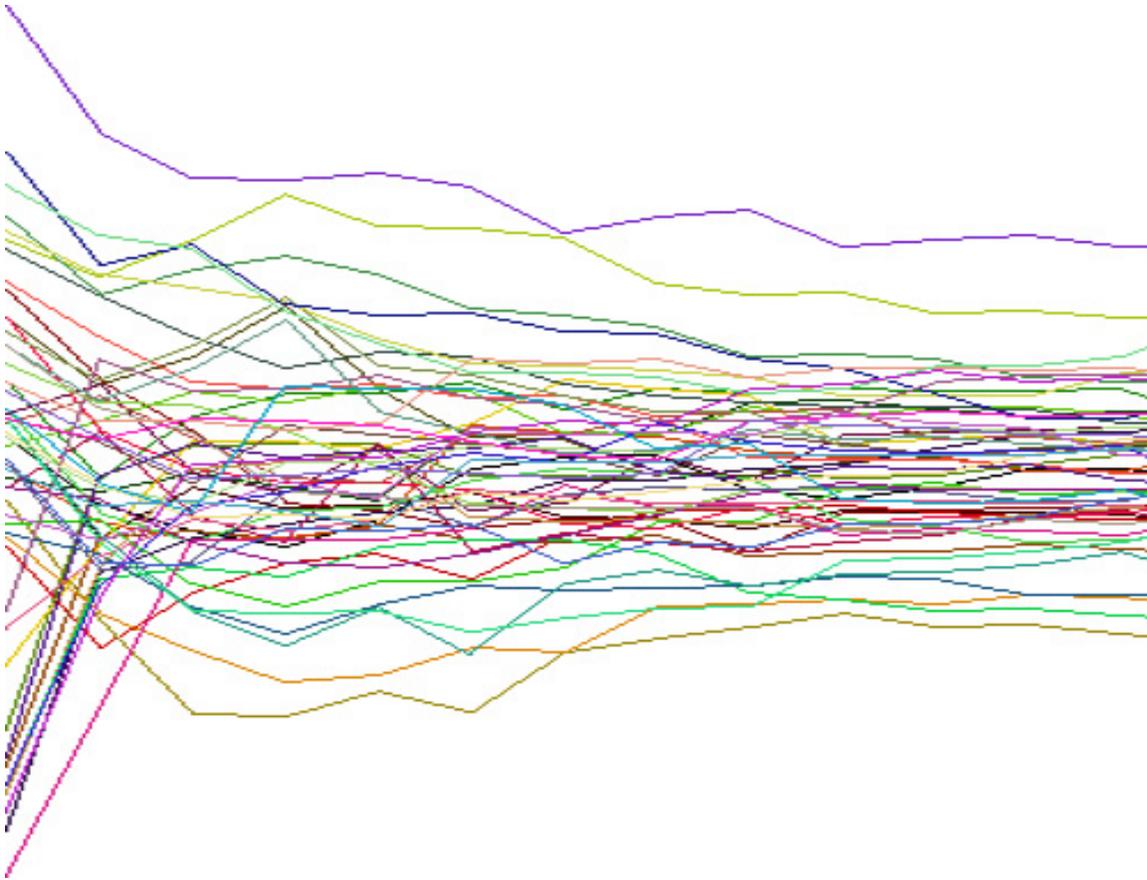
Think of the teams in a league as the nodes of a graph, and games between them as edges. In an ideal limit every team would play every other, and they would do so a large number of times, to provide maximal information. This doesn't happen in practice (baseball and basketball come closer than football), but on the — necessary — assumption that there is some average expected differential in any contest between two given teams, we can find it by [1] making the assumption that on average the sum of the differentials around a loop is zero, [2] noting that this entails that team strengths are, as we would say in physics, path independent, or derivable from a potential,⁶⁵ and then [3] considering the ongoing season of mutual contests to be a series of measurements of relative strengths and performing a least-squares fit to get the best estimate of their values. (I.e. to distinguish signal from Gaussian noise.)

Having thought of this I was naturally curious whether it worked, and accordingly (it being that time of year) dug up some online databases which chronicled college and professional football, gave myself the usual hernia doing data massage and entry, and examined the behavior of this algorithm over fifteen or twenty years.

The first thing that was clear was that the ratings did, indeed, converge to fairly stable levels over the course of a season:

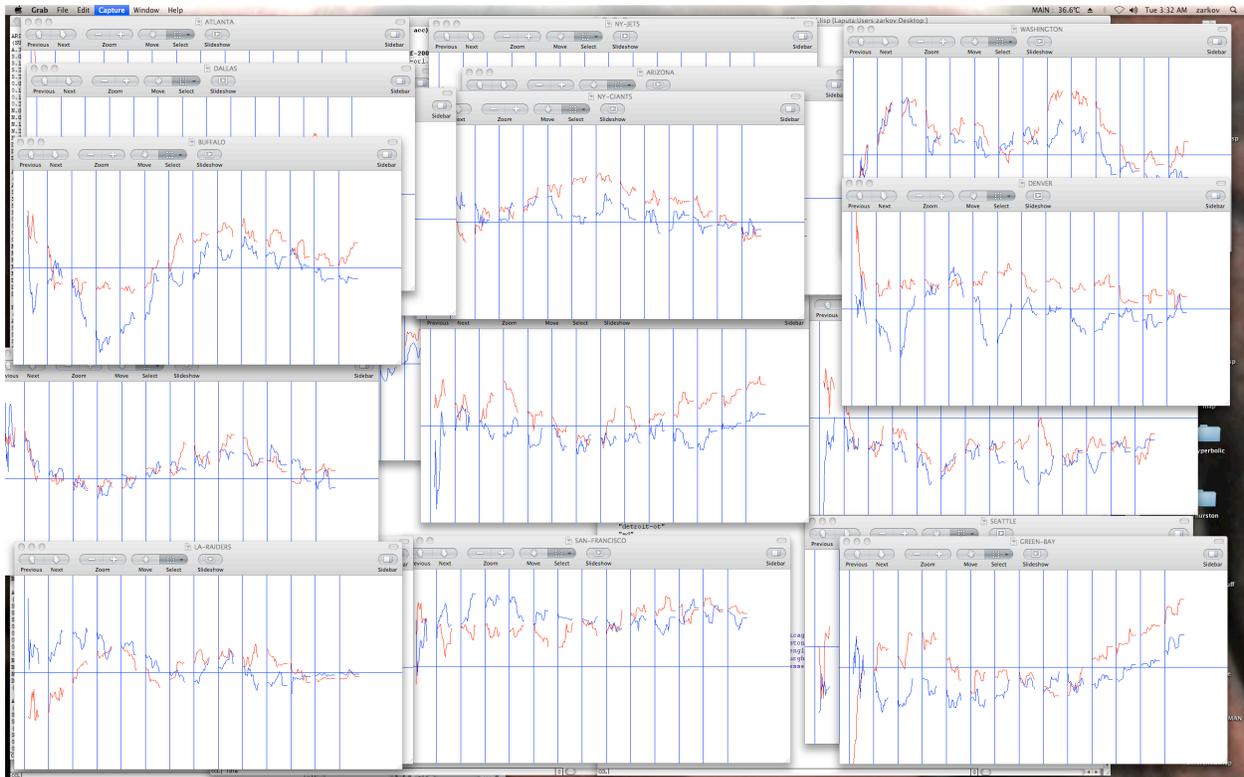
⁶⁴ I'm not Martin Luther by any means, but it's remarkable how many solutions to mathematical puzzles have occurred to me in similar circumstances.

⁶⁵ This is something like saying that the amount of work you must do to haul a suitcase from the first floor to the tenth depends only on the number of stairs you climb, and not on which set of staircases you take to climb them.



NFL 1991

The second was that the rise and fall in strength of individual teams was evident over the course of many seasons:



The third was that there was some plausibility in the idea that home field advantage could be quantified simply by considering that a team as two separate entities depending on whether it was playing at home or away; see the considerable disparity for Denver between the red and blue lines above.

The fourth, alas, was that the bounce of the ball meant that the error bars were broad (empirically the distribution was indeed Gaussian),⁶⁶ and the strength of even a professional team could vary by a couple of touchdowns either way on any given occasion. (College football was of course even more volatile.)

⁶⁶ A consistency check, since the least-squares fit presupposes this.

This meant, fifth, that though you could make accurate predictions about outcomes, in professional football the success rate was at best about 65%, and in college about 75%. This was as good or better than the best of the “official” prognosticators, but unfortunately when you refine the question to the money proposition, whether you can win against the point spread, the odds were only slightly better than even. This would still allow you to make money, but — but! — the house always takes a percentage on a winning bet, and when that is taken into account your advantage evaporates.

Here naturally since a solution appeared to be within reach a host of other ideas occurred to me: suppose I distinguished offense from defense (this would also allow betting on the so-called over/under of the game); suppose I assumed team strength increased or decreased in time over the course of a season, or displayed periodicity (I attempted a time series analysis); suppose I made better allowance for time dependence by giving a team an initial rating when the season began based on where it had finished the year before, and then weighted previous games less as they receded into the past (there even turned out to be an optimal value for the characteristic time in the exponential factor this entailed); etc., etc. I even devised a scheme in which the critical simplifying assumption [1] was relaxed, and a rock-scissors-paper logic could govern the relationships among teams, though this was mainly interesting because it was so complicated it was ridiculous; I have now at best vague memories of algorithms for cheating on the computationally prohibitive problem of finding a homology basis for the heinously complex graphs this model generated.

But the really fascinating thing about problems such as this is that if the first guess, the first-order approximation, doesn't work, then nothing you can do will improve it (i.e. it turns into a degenerative research program in the sense of Lakatos);⁶⁷ and in fact everything I tried just broadened the error bars and worsened the predictions. So

⁶⁷ See his essay “Changes in the problem of inductive logic” in Lakatos, Imre (ed.) *The Problem of Inductive Logic*. Amsterdam: North-Holland, 1968.

what the whole exercise in effect demonstrated is that the value for the point differential derived by the functioning of the betting markets, which synthesize and average a variety of sources of information and the reasoning of individual bettors whether true or fallacious — the instinct of the beer gut of the American public — is exactly the same as the value derived by a mathematical analysis which though more rigorous has access to no more information. (Or at least: no more *useful* information.) In effect the invisible hand of the market and my algorithms were solving the same variational problem.⁶⁸

So though there is still — sixth — the faint possibility of exploiting the fluctuations of point spreads up and down in the period before a game, or perhaps — seventh — programming an artificial intelligence to learn to discern patterns in these fluctuations and place bets in response to them (unfortunately requiring the availability of much more information), and admittedly these possibilities both sound suspiciously like the strategies Renaissance Technologies is rumored to use to extract astronomical returns for its private hedge fund⁶⁹ — if gold futures tend to drop in Hong Kong when barometric pressures rise in London, you can bet they know about it and will be able to change their market position within milliseconds when they read the signal — I am inclined to let the matter drop. — Devoting further attention to it would presuppose the expectation of some kind of personal financial return, after all. Surely the gods would not permit that.

⁶⁸ A similar principle governs, e.g., the application of the Nash equilibrium in evolutionary biology.

⁶⁹ Cf. e.g. Katherine Burton, “Inside the Medallion Fund,” *Financial Review*, November 22 2016.

*Being Dick Clark (1/2/2003)*⁷⁰

Leonardo Garbonzo's New Year's Rockin' Eve: ate a pizza, read *Candide*, watched Godard's *Hail Mary*.....

— 623.1 —

Hail Mary (1/3/2003)

Though he is supposed to have produced a document of atheism, Godard in one scene presents nonetheless a powerful — I want to say the canonical — argument for design over evolution: a guy is holding a scrambled Rubik cube and twists the faces at random while a girl standing behind him holds her hands over his eyes; naturally in the character of the Blind Watchmaker he gets nowhere. Then she begins to direct him as to how to twist the faces; lo and behold, the cube unscrambles before our eyes. — Thus, we are to infer, does order emerge from chaos, entropy run backwards: in the same way that actors take direction.

The mathematical question this suggests is how long, on average, it takes to unscramble a cube if you just twist the faces at random. You can regard this as an instance of the problem of random walk in a finite group: if you begin at the identity and concatenate multiplications by a randomly chosen member of some suitably chosen set of generators, how long on average does it take to get back to the origin?

I wondered about that off and on until, as usual, the answer occurred to me one day while I was taking a shower: the mean number of steps

⁷⁰ To Richard Strelitz.

is just the order⁷¹ of the group. In the case of the Rubik cube, there are 43252003274489856000 possible configurations. So if Godard's straight man started at the origin of the universe and made forty or fifty moves a second, there's a reasonable chance he would have solved it by now.

So the obvious answer is what was obviously the answer: if you employ a random search procedure to find a needle in a haystack, you pretty much have to look at every stalk of hay. — Thus (in the context of evolution) Hoyle estimates the probability of constructing a specific enzyme by counting the number of bases in the gene that codes for it, counting the number of possible random genes of that length there are, and dividing the former into the latter, thus arriving at the figure of one in a zillion.

But is that true? the answer is actually no. In the case of a scrambled Rubik cube, there aren't any visual cues to tell you whether one configuration is simpler (in the sense of requiring fewer moves to return you to the origin) than another. But in other kinds of problems it is often possible to assign a measure of complexity to a state (generically you can think of this as an energy) and weight an otherwise random walk to favor going downhill. Depending on the problem, then, it may be possible to find a global minimum (something analogous to the group identity) much more rapidly than random guessing would. — This is the gist of the famous Metropolis algorithm,⁷² which — not to put too fine a point on it — is one of the Secrets of the Universe.....

⁷¹ I.e., the number of elements.

⁷² N. Metropolis, A.W. Rosenbluth, M.N. Rosenbluth, A.H. Teller, and E. Teller, *Journal of Chemical Physics*, **21**, 1087 (1953).

Der Ring des Bimbolungen (1/5/2005)

Harold Bloom has said the problem of criticism is the problem of the third book, in the following sense: if you were to be stranded on a desert island and could only take three books with you, the first two would be the Bible and Shakespeare; but what is the third? — Similarly the problem of the B-movie critic is the problem of the third starlet: if you were, etc., then the first two girls you would choose would obviously be Julie K. Smith and Nikki Fritz, but after that an embarrassment of riches offers no clear third choice. — Fortunately research materials are cheap and plentiful, and our time is occasionally our own. Eventually this question will find an answer.⁷³

⁷³ It is best to make safe choices from the exploitation genre, and not, e.g., from horror. Barbara Steele was a dazzling (albeit disturbing) beauty as e.g. Fellini recognized and surely the greatest of all B movie art-school vixens, but if you were to retire with her to a desert island it's dead certainty she'd wind up drinking your blood in a satanic ritual.



Babe in the woods.⁷⁴

⁷⁴ Julie confessing her sins in *The Bare Wench Project* [Jim Wynorski, 2000].

The double helix (2/21/03)⁷⁵

This week's misguided cinematic inspiration (with apologies to Busby Berkeley): in the middle of an expanse of black and otherwise featureless empty space, the camera circles a gigantic arrangement of showgirls seated at white grand pianos arrayed like the nucleotides of the double helix, with the main strands joined below and separated above for reproduction as new pianos are hauled in out of nowhere to pair off with the loose ends. — I'm not sure of the musical accompaniment, and, typically, my imaginative satisfaction with this preposterous spectacle is tempered somewhat by the nagging realization that on one of the spirals the showgirls and pianos should be right side up and on the other they should be upside down. — But, really: *Gold Diggers of 2003*; how could it miss? with Dick Powell in the role of Venter, and Ruby Keeler as the Proteomic Muse.

⁷⁵ To Richard Strelitz.

*Frivolities (5/7/2003)*⁷⁶

...if you give more than a moment's thought to the idea of decomposing a complex machine into simpler constituents, you immediately think of using the standard mathematical constructions catalogued by category theory, products, sums, etc., as exploited for just this purpose by, say, the theory of group representations, or for that matter the theory of finite automata a la Krohn-Rhodes. But the ideas of extension and inheritance (particularly when you don't allow multiple inheritance) are much weaker. In practice what you end up with is just the familiar device of partitioning a large computer program (see any C distribution) into modules, dressed up in fancier language. Big fucking deal. — Two additional questions: given a sample organism, an insect, say, you can look at it and answer a well-defined series of questions (the principle of the biological key) and determine its species; where is the equivalent for computer programs? for the assumption, apparently, is that such a key ought to exist or should at least be constructible. Again: shouldn't there be a technique for analyzing existing programs into their elementary constituents? so that you construct the class hierarchy on the basis of existing "biology", rather than just assume that you have it right and derive everything from this basis. (An appeal to "intuition" in the theory of computer programming is always a mistake.) ...

As another illustration I managed to waste an entire day last week staring at a defective routine before realizing that strings in this benighted language may print out identically without actually being identical, at least in the ($s == s'$) sense. The correct test, of course, involves the following ridiculous sequence of operations:

```
String s = new String();
```

⁷⁶ To Richard Strelitz.

```
s = (whatever it was I'd imported from an html page and  
invisibly mangled);  
if s.equals(s') then (etc.);
```

— which illustrates perfectly the fundamental logical flaw of object-oriented programming, namely, that it somehow grew up in complete ignorance of Russell's critique of the Hegelian doctrine of internal relations. (The most perfect illustration of that doctrine, of course, is Leibniz' very "object-oriented" theory of monads; the very apotheosis of the principle of encapsulation.)

Without launching into an even more extensive polemic that would represent an even greater waste of time, you might consider the version of arithmetic you end up with if you have to instance numbers from a natural number class as

```
Number nine = new Number(111111111);  
Number five = new Number(11111);
```

and then try to figure out why

```
(nine.plus(five)).equals(five.plus(nine))
```

is the same fact as

```
(five.plus(nine)).equals(nine.plus(five))
```

— not to mention what you'd have to go through to express associativity, etc. (And where is "fourteen" in all of this, incidentally?)

*Minor triumphs (7/8/03)*⁷⁷

A couple of weeks ago I found myself trying to make up an algorithm to compute the positions of the vertices in a moderately-complicated graph (of atoms and covalent bonds, actually) consisting of nodes (with attached coordinates in three dimensions), edges (with attached difference vectors and distances), faces (consisting of pairs of edges meeting at a node, with attached coordinates consisting of the orthonormal basis defined by the two vectors), and tetrahedra (consisting of pairs of faces, etc., and with attached coordinates consisting mainly of the rotation matrix mapping the triple of the first face to the triple of the second), ordered by default by the order in which the nodes were listed (so that of the two edges (a b) and (b a) only one is listed in the edgelist, and similarly for faces and tets), in which I was imagining that I was going to tweak the constituent angles slightly and then recompute all the coordinates. The problem here was that the graph contained cycles, and though (thanks to the default ordering) I wasn't going to be able to run around a loop ad infinitum I was going to have the problem of arriving at some particular "node" (actually the induced tetrahedron graph turns out to be more fundamental, but the principle's the same) from several different directions, and needing to be able to specify that I wasn't going to attempt to fill in the coordinate record at that point until I'd filled in everything on the paths leading to it. — So what I thought of first was this: there's a useful control structure in the programming language Lisp called "dolist" which runs through all the items in a list sequentially and "does" something (e.g., computes the coordinate records); what I seemed to need was a generalization along the lines of "do-partial-order" which would compute something at an element iff I'd already computed all the values at that element's immediate predecessors. (I.e., total induction.) Then it seemed clear that the best way to do this was to order the elements (this is the third ordering in

⁷⁷ To Richard Laver.

the problem, if you're keeping score) in such a way that an element couldn't appear in the list until all its predecessors had already been listed; after which the values at every point would follow from the values on the set of minimal elements. — So then I wrote a few versions of this along the usual lines of trying to trace a tree [something treelike anyway] from left to right recursively, etc., etc. All these attempts were incredibly slow and the machine ran out of several hundred megabytes of memory and froze on anything larger than trivial examples. — Then, fortunately, I remembered my education, and decided to think about it as not as a problem requiring some depth-first or breadth-first “strategy” (as the hackers say), but rather as something like a topological question: you start with the set of minimal elements, $A[0]$, for which you know the values you want to compute, and you define a sort of closure operator $A[n - 1] \rightarrow A[n]$ which at any step adds exactly the elements x for which every predecessor y of x lies in the set $A[n - 1]$ on which the function has already been defined. — When I coded this it worked immediately and it was much faster and more efficient, allowing me to solve problems for graphs of over a thousand nodes in a few minutes. Gad, it was satisfying.

So the moral is that, even in algorithmics, it's always better to reason like a mathematician. I can't tell you what a relief it is to rediscover this.

With regard to generalizations of the twin-prime conjecture: the simplest version appears already in Hardy and Wright, and states that there are an infinite number of prime triples of the forms $\{p, p + 2, p + 6\}$. (And similarly for $\{p, p + 4, p + 6\}$.) The point here is that one of $\{p, p + 2, p + 4\}$ would have to be divisible by 3, and therefore you would guess (as supported by extensive empirical evidence) that any k -template (as you could call it) of the form $\{p, p + a[1], p + a[2], \dots, p + a[k - 1]\}$, where the sequence $\{a[0] = 0, a[1], \dots, a[k - 1]\}$ has the property that, for any prime $q \leq k$, the set of residues $\{a[i] \pmod{q}\}$

q)} is a *proper* subset of the complete set of residues $\{0, 1, \dots, (q - 1)\}$ (otherwise q would have to divide one of the $(p + a[i])$), will be instantiated by an infinite set of k -tuples of primes, with probability density just what you'd guess from the distribution of the primes.

That doesn't look easy to prove. But what about this? for any k , there are an infinite number of k -templates satisfying the preconditions; for $k = 2$, for instance, $\{p, p + 2 \cdot m\}$ for any m relatively prime to p . Can you show that, for any k , there exists some k -template for which there are an infinite number of k -tuples of primes instantiating it? — If you can show this for all k , then follows that there are an infinite number of k -templates instantiated for any particular k ; since, e.g., $\{p, p + 2, p + 6\}$ shows $\{p, p + 2\}$, $\{p, p + 6\}$, and $\{p, p + 4\}$, and the generalization is obvious.

(Actually that isn't exactly the right way to say it, but never mind now; the point still holds.)

It would suffice, anyway, to find some reason that there exists some 2-template $\{p, p + 2 \cdot m\}$ for which there are an infinite number of prime pairs; after that it isn't difficult to generalize it to arbitrary k -templates. And this, after a brief argument, is equivalent to disproving the following: for any even n , there exists a prime p such that the sequence of primes $\{q: q \geq p\}$ has minimum spacing $\geq m$; i.e., for all $q[k]$ in this sequence $(q[k + 1] - q[k]) \geq m$. — Now, the expected value of $(\text{prime}[n + 1] - \text{prime}[n])$ is about $\log n$, which grows arbitrarily large, but it seems to me there ought to be enough information about the distribution to show it can't be as regular as the hypothesis says, that you can't put a rigid lower bound on the spacing like this. (I presume you'd derive this from properties of the zeta function, though off the top of my head I don't know how.)

So though I can't imagine how you would prove that there are an infinite number of prime pairs $\{p, p + 2\}$, it doesn't seem impossible to show that there are an infinite number of m for which there must be

an infinite number of prime pairs $\{p, p + 2^*m\}$. — The next question would be whether this is true for “most” m in some natural sense of relative measure, but, for the moment, enough is enough.



The happiest dog in the world (8/7/03)

Quite unexpectedly over the course of the week preceding the Fourth of July my nine-year-old Australian Shepherd Boris, a blue merle of hitherto indefatigable vivacity, took ill, showing an uncharacteristic loss of appetite and energy and an inability to swallow anything that he did not nearly at once regurgitate. That Saturday he deteriorated rapidly and passed through the hands of three veterinarians in the space of ten hours; the last of whom, finally, persuaded me with a lengthy and horrifically graphic lecture on the consequences of massive kidney failure of the necessity of euthanasia after it had become apparent to the hospital staff that I would, otherwise, sit there on the floor of his cage in a puddle of puppy shit patting his head all day and all night for the rest of his miserable life, or mine, whichever came first. — So they're right once again, that love isn't stronger than death. I guess I always knew it wasn't so.

Though a gradual degeneration of kidney function remains a possibility, the most probable cause of his premature demise is some form of accidental poisoning; by antifreeze, perhaps.⁷⁸ The freakish character of this mischance notwithstanding, I may never let a dog drink from a mud puddle again.

Boris is survived by his sister Natasha, a black Aussie of identical age and (modulo differences of sex and the mellowing effects of her current chubbiness) vivacity. The two of them were born on March 14, 1994, which the cognoscenti will recognize as the 115th birthday of Albert Einstein; I always regarded this as a favorable omen. They have never previously been separated. She is, understandably, confused, and shows a tendency to look around on our walks, wondering where her brother is. I find this difficult to witness.

⁷⁸ Much later I discovered that, despite appearances, the condition was probably hereditary.

The good thing about obtaining dogs in pairs is that they keep one another company. The bad thing is supposed to be that they pay more attention to one another than they do to you. But Boris and Natasha, though they played with one another constantly, were always unusually attached to me. Boris in particular suffered from a pronounced separation anxiety: he would follow me around the house from one room to another, even into the bathroom. For a long time I had trouble locking them in when I left to go to work: they'd jump out the windows to follow me; or, if they couldn't escape, howl piteously, exciting the anxieties of the neighbors. — Once when I had borrowed a pickup for one of my frequent moves I left them behind in the old place while I transferred a load of junk to the new one. When I returned I let them out and Boris immediately disappeared; I discovered when I hauled the next piece of furniture out that he had gone straight to the truck and jumped into the cab through the open window, and was sitting on the front seat, determined not to budge, lest I leave him behind again. — Finally I solved this problem by going back to my old job as a newspaper carrier and driving all night for a living, which meant that I could, literally, take them with me everywhere. The job sucked, of course — the *reductio ad absurdum* of the downward progress of my career arc, seven days a week in the middle of the night getting hosed by petty criminals turned managers who giggled at their own lies and drooled down their bibs — and I suppose I should have been miserable, but my feeling then as now was that, however resistant to amelioration my own circumstances, still, one must change what one can for the better in the world, and even if I were being clubbed into narcolepsy in the economic gulag I could still make sure that my dogs were happy. — And in fact they loved riding around watching me heave newspapers into the welltended shrubbery of the idle rich. And that made everything better. — Of Boris in particular I always thought that, so long as we were together, he was the happiest dog in the world.

There is a general perception that the study of artificial intelligence encourages a belittling of human capacity, and a reductionist and

mechanistic view of mental and spiritual life. But really the opposite holds: the more you wonder how machines might be made to think, the more you learn to marvel at the mysteries which inhabit even the simplest mental capacities: the function of memory, the recognition of objects, the formation of intentions, the mechanism of self-awareness; as for that matter it is still baffling how living organisms can run so far off thermodynamic equilibrium, or reproduce themselves. — The question seems less why things are as they are, but why there is anything at all, and not nothing. — And thus the more you appreciate the intelligence of animals, and the more you realize that there is a continuum in nature, and that, if not all things, if even not all sentient things, still certainly all conscious panting things have souls. — It does not seem unnatural, then, that the bonds between yourself and your pets should be stronger than any between yourself and any of your fellow-humans, and that they can become your best friends and the closest members of your family.

It is frequently suggested, of course, by the people who make it their business to Suggest Things, that there is something defective in such an arrangement, and that an attachment to a pet is an inferior substitute for human attachments. But then it is often suggested that human attachments are inferior substitutes for attachments to God, King, Country, Dialectical Materialism, or the Rosicrucians, depending on the agenda of the selfappointed advisor; and, anyway, all this completely misses the point, which is that there are as many ways of being involved in the world as there are conscious entities taking part in it, and that no path to enlightenment is particularly to be preferred to another. Or, that if there is one such, it lies beyond human capacity to distinguish it from its alternatives.

That is, from the perspective of one who could take in the whole chain of Being at a glance, dogs might appear less significant in the Scheme of Things than humans are; as humans may appear less significant than angels, or aliens, or aphids or Astarte. But what is this Scheme? and who knows it? save God or Douglas Adams, and both of them are supposed to be dead. From the perspective of one who dwells within

the chain, the differences between species are less significant than the differences, as it were, between being and nothingness. And any attempt at imposing an order upon the (putative) chain seems ill-motivated, artificial, and arbitrary. — Though my dogs have, for instance, fallen short of my own linguistic capabilities, they have other capacities which I lack, and in any case the gap in question seems rather less than, say, the relative difference in musical talent between myself and Mozart; let alone the yawning gulf in mathematical ability separating the average numerical-illiterate from Alexandre Grothendieck. — What can be stated exactly and to some extent quantified (as, e.g., the Hamming distance between two genomes) is genetic variance; and, though certainly there are genetic dissimilarities between humans and dogs, these are relatively inconsequential — indeed, the genomes of men and flatworms only differ by a factor of two — and an argument from lack of strict identity won't bear examination: after all, the human male has less genetic material in common with the female of his own species than he has with the baboon (something which many of us had already figured out without benefit of genomic analysis.)

The point here is that Nietzsche, as usual, had it right: if you insist on drawing distinctions, then you may as well call Gauss and Goethe supermen, and dismiss the rest of us as beasts of burden; if you look for similarities, on the other hand, then men and animals are cut from the same cloth and have most of the same capacities, and, presumably, the same rights and feelings. — The dialectical relationship between these points of view is difficult to describe, but it's worth noting that the last conscious act of the author of *Zarathustra*, before his final breakdown, came as he was walking through the streets of Turin and saw a coachman flogging a horse: dashing out into the street, he threw his arms around the animal's neck, trying to protect it; and then collapsed. — After that the rest, as they say (David Lynch would say it in Spanish) was silence.

I'd intended to breed Boris when the opportunity arose, to ensure, I

guess, that part of him would always be with me; thanks mostly to bad timing, this project came to nothing. I wonder, inevitably, whether it might at some point be possible to clone him, but I don't know when that will happen, and it is not yet obvious whether cloning is actually the biological Xerox that one would want it to be. Because what I want, really, is some way of bringing him back, and that probably doesn't exist.

And you expect this, after all, because our lives are bounded and the very fact of our self-consciousness and its relation to memory even without reference to the apparent sources of temporal asymmetry in physics (the second law of thermodynamics, the choice of the retarded Green's function in radiation theory, the expansion of the universe, the breaking of CP invariance, the reduction of the quantum-mechanical wave packet) entails an irreversibility to the passage of events: things happen, and they pass, and we cannot bring them back. The moving finger writes, and having writ. You can't go home again. You know the drill.

On the other hand the fact that the past is not accessible to present consciousness in the way that, say, Nepal is, doesn't mean that it's not there. Reality consists of events, as Russell said. Or moments. And not all of them suck.

So it is that I remember an extraordinarily clear Sunday morning in early Fall when against habit I stayed up after coming home from one of my night jobs and went walking up the Mesa Trail through Chautauqua Park with my old Aussie girls Franny and Zooey: the sky was cloudless and that deep and vivid blue unique to Colorado, the air was crisp and clean, the temperature was perfect, and we walked up the old road along the mountainside it occurred to me suddenly that, if there were some kind of Mohammedan paradise that preserved one forever in a simulacrum of the pleasures of the flesh, that it would have nothing to do with uniting me in carnal bliss with the young Ursula Andress (this realization came as a surprise), but that it would be just this, walking with my dogs in that particular place at that

particular moment on that particular day.

This was one of those moments Joyce called epiphanies, when, as it were, the Holy Spirit descends upon you and all the noise and clutter and complication cancel out and you see the scheme and structure of the world in a flash: *integritas; consonantia; claritas*. I saw that the world is what it is, when it is. And that that is enough.

So though the spirit of Boris is not exactly omnipresent, a little winged doggie-angel hovering above my shoulder watching over me, or waiting for me, necessarily, in some happy hunting ground to which I shall presently repair when I too fall off the end of my worldline, still, the principle that he represents — a certain Platonic idea of playfulness and vivacity, a complement to my own spirit, whatever principle I represent — is — how to put this — valid, and has no temporal signature attached to it.

So, for instance, there is this: one afternoon early in the summer of 1994, when the creek had been near flood tide for weeks and thrown up sandbars in the middle of the current that remained after it subsided, I took Zooey, by this time an old lady, out for a walk along it with the puppies. It was a hot day, even down along the water, and we paused frequently to allow them to take baths; and, finally, at a large pool near the mouth of the canyon we lingered for the space of half an hour while they played in the water. It was here that they invented an extraordinary game of Amphibious Assault: Zooey and Natasha got out of the water onto a sandbar ten or fifteen feet in extent and played the defenders, running around the shoreline and barking at attempted breaches of security, and Boris, incredibly, splashed around the perimeter of the little island all by himself, dashing on and off the beach — inventing and playing the part, I saw to my amazement, of the Marines. I laughed helplessly at this spectacle; I have never seen the like.

It might have been on this occasion that he leapt into the water as we

walked back and burrowed in the bed of the creek until he dug a rock out with his teeth, and brought it home as a trophy: the first and last time I saw a dog adopt a pet rock.

For the most part, however, he collected tennis balls, which he carried home and used in other games of his own invention. — I could never persuade him to fetch, until he had amassed a sizable collection of these and had discovered playing catch with himself, flipping the ball around with his teeth and chasing it, and then decided that this was enough fun that he should involve me in it. After that he would bring me a ball and try to get me to throw it to him when he wanted to convince me it was time to take a walk. As always, it was an open question who was teaching what to whom. — It will now be my duty to liberate them all by tossing them one by one back into the creek. Maybe they'll run to the sea; maybe some other dog will pick them up and carry them home. I don't know. Let the Great Spirit sort it out.

Wittgenstein ended his famous *Logisch-Philosophische Abhandlung* (aka *Tractatus Logico-Philosophicus*) — a work which attempted, at least, to formulate the limits of what could be expressed in language — with the beautifully cryptic and oft-quoted remark, *Wovon man nicht sprechen kann, darüber muss man schweigen* — which Pears and McGuinness render, *What we cannot speak about, that we must pass over in silence*.

The positivists read this, not badly, as a denunciation of classical metaphysics; and, indeed, Wittgenstein lost little love for Aristotle or Kant, let alone Hegel.

But though part of his intention was, certainly, to draw a line between scientific rigor and pointless speculation, between what can legitimately be expressed in language and what cannot, Wittgenstein made it very clear this was as much to protect the significant inexpressible from the profane attentions of overliteral scientific knownothings as to expunge it from discourse; that he thought, in fact,

that all the important things in life lay beyond the reach of language, and that their understanding was not enhanced but rather damaged by witlessly babbling about them.

That is, if language is the means we employ to express the structure of reality, then the form of this expression, and what is expressed, are not part of it: the picture cannot show its own frame. (This is in a way the exact antithesis of the idea of *The Matrix*.) Then in particular *Der Sinn der Welt muss ausserhalb ihrer liegen*: the sense of the world must lie outside of it. — You might have the feeling that you could somehow see what this ought to be — there is the inexpressible, he said — but this was beyond the grasp of syntax, a thing that might show itself but could not be said. — In fact his own explanation of the relation of language to reality could not, on this account, be legitimately expressed in language; and, accordingly, he admitted that his own work was, strictly speaking, meaningless (though nonetheless useful because therapeutic.)

To all this the logician Frank Ramsey — quite as brilliant as Wittgenstein, and generally funnier — responded “But what we can’t say we can’t say, and we can’t whistle it either.”

Ramsey had most of his side of the argument right, but in this particular choice of words he was just a trifle too clever for his own good. Because there are things that lie beyond the power of expression, the meaning of life, for instance. But even though you can’t say what this is, you can certainly whistle it. Or, even if I can’t, Mozart could.

Not that it’s really all that complicated. There’s an old Shaker tune, called, appropriately, “Simple Things,” famously adapted by Aaron Copland for his *Appalachian Spring*, which contains all the wisdom I have gathered in the world. It advises us, as everyone knows, that it is a gift to be simple, and a gift to be free. And that when we find ourselves in the place just right, it will be in the valley of love and

delight. — If we take eternity to mean not infinite temporal duration but timelessness, says Wittgenstein, then eternal life belongs to those who live in the present. — Which is where my dogs are, and where they remain: in the valley of love and delight.

Ah, my girlfriends should have been so lucky. — Time to take Natasha for a walk.

Later.

Tractatus 6.4312

“Not only is there no guarantee of the temporal immortality of the human soul, that is to say of its eternal survival after death; but, in any case, this assumption completely fails to accomplish the purpose for which it has always been intended. Or is some riddle solved by my surviving for ever? Is not this eternal life itself as much of a riddle as our present life? The solution of the riddle of life in space and time lies *outside* space and time.”

Compare Nietzsche in *The Antichrist* [#34]: “The ‘kingdom of God’ is nothing that one expects; it has no yesterday and no day after tomorrow, it will not come in ‘a thousand years’ — it is an experience of the heart; it is everywhere, it is nowhere.” (Refuting the idea that the Redeemer preached a life to come, and not a life that is already here to be lived, if one but grasped it.)

“Eternity is a mere moment,” says Goethe to the Steppenwolf. “Just long enough for a joke.”

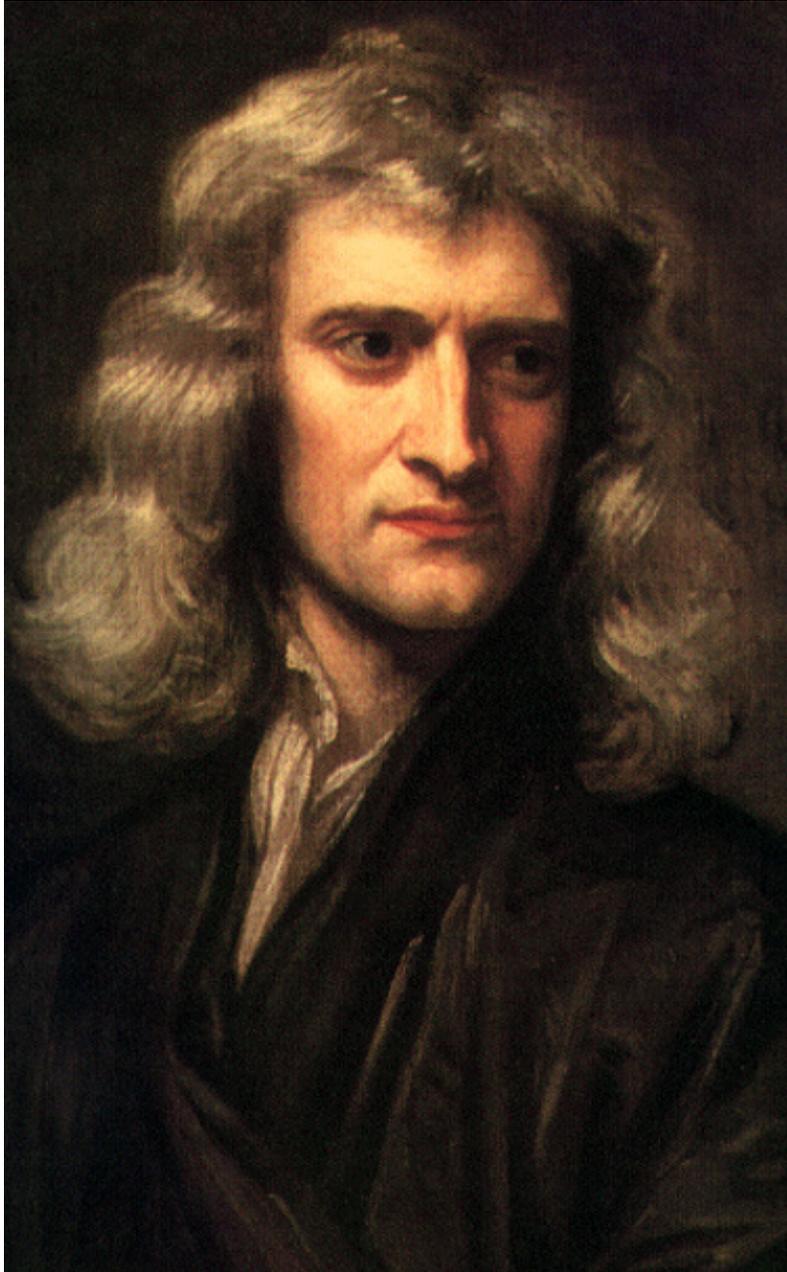
Cosmological constant blues (10/13/2003)

Amusing that this week's version of the vacuum-energy crisis has it that the universe will expand into vacuity in only a few billion more years. Apparently Woody Allen had it right after all: Brooklyn *is* expanding. Now if only Texas would shrink.

Poetic license (12/7/2005)

I confess to Dog that, until I looked it up, I thought “dactylic hexameter” was the assembly language for the Z-80 microprocessor.

The nature of reality (2/25/2004)



The marble index of a mind forever
Channelsurfing through novelties unsought,
Ozon'd.

Fade in upon the logo of the Borges network: an existential quantifier.

“What is reality?” asks a stentorian voice.

Wagnerian theme music.

Fade through to:

A medieval castle overlooking the Rhine. Something about it is not of the present: it seems to belong to another time and place — to the Middle Ages, to the romance of chivalry. — Small sailboats of antique design out upon the water recall the scene of Bruegel’s “Fall of Icarus”.

Rosy-fingered dawn. A nude female figure with a long braid, startling in her perfection, dives from the parapets with a knife between her teeth a hundred feet into the moat and commences wrestling a giant octopus. The cheerful gusto with which she goes about this suggests that this is her morning ritual.

It’s a long drop. She hangs in the air for an endless John Woo moment, captured from multiple angles by multiple cameras cranked at multiple speeds in multifaceted slow motion.

The castle is surrounded by a forest which of course must be enchanted, full of giants and monsters and ensorceled maidens. A dragon circles above the woods in the distance, belching fire and diesel fumes. It leaves a trail of smoke, spelling out promotional messages.

A startling virtuoso virtual camera move in across the drawbridge and through the castle gates, which open to admit it.

Interior. — The great hall. — It is hung about with tapestries depicting Great Moments in Celebrity: the chase of the White Bronco, the Unveiling of the Blue Dress, a triptych summarizing the Rise and Fall of Liz and Dick. — A dude with long white hair, clad in

seventeenth-century attire, stands gawking in openmouthed disbelief beneath an exhibition of the exploits of Pam and Tommy Lee.

Exposition. — The new reality series. — Ontological engineer Marcel Proust explains the premise, not clearly. Chainsmoking through a holder, he speaks rapidly and with obvious impatience: "...quantum cloning...teleportation of states...inextricable entanglement of observable reality with the unrealized possibilities implicit in the structure of the string-theoretic vacuum...lucid dreaming within the bosom of *Anima Mundi*....."

His disdain for the limited understanding of the audience is manifest. "Lusers," he sniffs.

The Dramatis Personae are introduced. They have been summoned out of time and space and fact and fiction to mingle here, in the Land of Faerie, to explore new dimensions of crossworld celebrity.

(Flashback to the kidnapping of the personae. Shining faceless cubist robots pop out of nowhere and toss them into the back of an oxdrawn haycart which negotiates a rutted dirt path that somehow weaves in and out of the various worlds from which the protagonists have been plucked. — Forking recursively, it leads through the branches of the continuum.)

(Periodically the shining faceless cubist robots reappear and haul someone off to the principal's office. They also escort them on their excursions.)

The players are:

— Isaac Newton (the white-haired dude). "Hypotheses non fingo," he says. "But this is some seriously twisted shit."

— Lara Croft. Now clothed and with her knife sheathed on her belt.

She explains the elements of Breast Physics to Isaac “Notice as I shift my weight... .” His attention is dispassionate.

— Ivan Karamazov. He is disheveled, disoriented, and unwashed, and will provide ample opportunity for Stoly product placement.

— The Bride of Frankenstein. She is swathed in bandages, and expresses herself in mime, accompanied by grunts and shrieks. — “Is this the inarticulate Doppelgänger of Mary Shelley?” asks a passing Critic. He is seized by a robot and tossed through a portal into another dimension.

— Socrates. He has been plucked from the Athenian camp on the expedition to Potidaea, and is lost in meditation.

— Joan of Arc. Her face is smudged and her garments are scorched, but she is none the worse for wear. “My mission is to serve the Audience,” she says.

— Zippy the Pinhead. He is telling the Bride that he finds stitches attractive. “Like tattoos,” he says, “without the annoying visual subtext.”

At the commencement of each episode they find things deposited on the doorstep by invisible hands — the Spirits of the Wood. These gifts are guides to the conduct of the day — itineraries, tasks, to-do lists, —

In the castle kitchen is an egg timer. It is always set to fifteen minutes, and it is always ticking.

The party takes a picnic in the woods, foraging for mushrooms nuts and berries. They encounter trolls, ogres, evil sorcerers, and fair maidens held in durance vile. A Weird Woman gives them magic beans, which when planted grow into a beanstalk they climb from the

earth's surface to geosynchronous orbit. Isaac explains the stresses caused by Coriolis forces. Lara plays ring-around-the-rosie. Ivan gets wasted on the contents of his pocket flasks and delivers a peroration on the spiritual emptiness of Copernicanism. Zippy moons the continent of Asia.

Descending, they entertain guest star Bishop Berkeley, who explains that *esse est percipere*, and that if a tree falls in the forest where no cameras can record it, it has no Audience.

Evening. Clouds race across the face of the full Moon.

Newton soliloquizes before the camera: "I do not know what I may appear to the Audience, but to myself I seem to have been only a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of Celebrity lay all undiscovered before me."

Dawn. Lara dives in slow motion.

Guest stars Jean Baudrillard and Saddam Hussein debate the nature of reality. "*Survivor: Tikrit* did not take place," says Baudrillard. "I thought, therefore I was," says Saddam.

Evening. Clouds race across the face of the full Moon.

Lara, soliloquizing before the camera, explains how comforting she finds it to know that someone is always looking over her shoulder.

Periodically Joan has visions in which the Audience expresses its desires. "It wants you to go fuck a goat," she tells Ivan. "It wants you

to admit you're gay," she tells Isaac. "It can't believe your tits," she tells Lara. "It wants you to chug the hemlock," she tells Socrates. "It thinks that you make sense," she tells Zippy.

Guest star Carl Rogers joins them to conduct a group therapy session. They all take turns addressing the problem of Ivan, who is morose and uncommunicative. In a ritual of self-abasement, he is forced by the others to kiss the camera lens. "Hell is the inability to love exposure," says Zippy.

They meet with the Bavarian Illuminati and learn from their PR flack G.W.F. Hegel that Absolute Celebrity can only be conceptualized in complete anonymity. Inspired by this example, they become invisible for an entire episode, during which they manipulate the price of gold, reverse the Earth's magnetic poles, and give new names to all the stars.

Restored to visibility, they continue to debate the nature of eternal fame. "Martyrdom ensures immortality," says Joan. At her insistence, they stage a ceremony atop a pyramid in which her heart is ripped out and eaten raw by an Aztec priest, played by guest star Erik Estrada. At the party after the sacrifice they drink mescal and tequila.

The robots materialize and escort them to a dinner party in (minus) fifth-century Athens, where they take part in dialogues on the nature of Celebrity with a gathering of luminaries. — "In the beginning, all beings were united with the Audience, and everyone was famous," says Aristophanes.

Socrates demonstrates the innate nature of the Ideas by leading the Bride through a proof of the theorem that every positive integer is the sum of at most four squares. She responds with shrieks, spastic

gestures, and elaborate computations upon the blackboard. The question arises whether the Ideas met in her person have been stitched together from other, dead, Ideas. Lara points out that her constituent polygons are composed of triangles. Timaeus expands this observation into a theory of the origin of the elements.

Joan hits on Lara. Lara hits on Socrates. Socrates hits on Ivan. Ivan gets drunk and passes out, not before he improvises a peroration on the destiny of the Slavic peoples in the coming century, whether the twentieth or the fourth before the birth of Christ no one is really sure. Isaac hits on Alcibiades. The Bride hits on Theaetetus. Zippy hits on a statue.

Clouds race across the face of the full Moon.

Karamazov hallucinates a conversation with a diabolical television critic. He confesses his underlying anxiety about the moral ground of human action. "If there is no Audience then everything is permitted," he says.

Dawn, etc.

The robots take them on a field trip to the Arlington National Cemetery in Washington. In a moving ceremony, they lay a wreath at the Tomb of the Unknown Celebrity.

Clouds race across the face of the full Moon.

Newton demonstrates the reality of Absolute Space with a rotating hot tub which induces nausea in its occupants. Ivan vomits profusely. Zippy declares himself to be Absolutely Spaced. Lara's floats dominate every camera angle. — A guest addresses her: "I remember you! You

used to be big.” — “I *am* big,” she replies disdainfully. “It’s the graphics files that got small.”

Clouds race across the face of the full Moon.

An evening in the tower laboratory. As a thunderstorm hangs over the castle and lightnings course into the galvanic cells and Jacob’s Ladders of their extensive Strickfaden apparatus, they take turns bringing the dead to life.

Isaac enjoys this, it recalls the alchemist’s laboratory of his rooms at Cambridge, where he labored to turn lead into gold. Zippy suggests that gallium arsenide would have been more profitable.

Assisted by the hunchback Igor, they reanimate a scenario stitched together from the parts of dead screenplays. “It’s *Wall Street* meets *Pickup on South Street* by way of *Nightmare on Elm Street*,” says Zippy. The ensemble does a dance number from *42nd Street*.

Voltage is applied to the electrodes inserted at the plot points on either side of the neck. The monster twitches. “It’s alive!” Ivan screams, and runs out into the night. The hunchback cackles exultantly..

The lumbering scenario despite its damaged brain opens wide on three thousand screens and grosses fifty-six million the first weekend. The suits talk sequel.

Clouds race across the face of the full Moon.

Zippy prepares a meal. The entrée is M&Ms. He serves grape Kool-Aid in brandy snifters. “The bouquet is delicate,” he says. Ivan spikes it with vodka. The diners grow progressively more boisterous. The meal concludes with a food fight.

Clouds race across the face of the full Moon.

After a passage down the Rhine, they descend into the caverns of the Nibelungen and behold a vast horde of gold. The CEO, the dwarf Alberich, exhibits three magical artifacts bequeathed him by the sorcerer Merlin. The first is a mirror that shows whoever gazes into it how he appears to America. The second is a brass horse that can carry its rider anywhere seen on television. (“Ah,” says Zippy, “the Universal Touring Machine.”) The third and most marvelous is the Tarnhelm, a golden cap which renders the wearer always visible to the Audience.

Ivan soliloquizes before the camera. “As sadists are to masochists, so are we to voyeurs,” he says. He chugs morosely from the bottle. The label is always visible.

Guest star Marie Curie puts radium in the punch and makes everyone glow in the dark. Joan loves it. “I burn with an inner fire,” she says.

Socrates is put on trial for corrupting the youth of Athens. Guest star Vanilla Ice is a witness for the prosecution. “I can’t believe the way that asshole is yanking my chain! I wanna flatten his little snub nose all over his face!”

The players conduct a séance and celebrate a black mass. They burn a cubist robot in the Wicker Man; it emerges unscathed, and sweeps up the ashes. They vacation as pirates on the Spanish Main. They go up the River to find Kurtz. They suspect the Suits have planted a spy among them, and engage in a gripping Mole Hunt which ends when one of the robots is unmasked as an executive producer wrapped in tin

foil. They construct a Golem which runs amok in the Ghetto of Prague. They stage an opera based on an unproduced screenplay of Ed Wood. They play a game of touch football in which after every score the opposing team must remove an item of clothing; it ends when Lara takes her top off and everyone faints. They put on a fashion show, playing the parts of runway models: the Bride shows off new bandages, Zippy appears dressed as a landing strip. They make a New Wave film and premiere it at Cannes. They spend a week as Guest Scholars at the Institute for Advanced Study, where they are interviewed by a postdoc who wrote her dissertation on Paris Hilton's ennui. They travel back to the siege of Syracuse and amuse themselves hurling boulders at the Roman ships with the catapults of Archimedes. — Isaac fills him in on the invention of the calculus. Zippy addresses him as "Dude". — They visit the Metropolis of Fritz Lang; Ivan develops a fixation on Robot Maria. They take turns spending fifteen minutes as John Malkovich. They descend into Atlantis, and explore the sunken ruins. They return to the Mesopotamia of the Age of Gilgamesh and expend an episode with the inventor of writing, inscribing mud bricks in cuneiform. "This is so over," someone remarks.

Clouds race across the face of the full Moon.

For the season finale they throw a pool party. Naked starlets play volleyball. Wolfgang Amadeus Mozart plays whorehouse piano and farts in counterpoint. There is a spectacular fireworks display, during which Jimi Hendrix plays "The Star-Spangled Banner". It concludes when Joan straps herself to a rocket and explodes into space.

The Bride's bandages are removed. Underneath them she looks just like Julie Kirsten Smith. "Talk about raising the dead," says Ivan, regarding the bulge in his trousers. She and Lara bond over their lower back problems. They are signed to a three-picture deal by Andy Sidaris. "I sense franchise," he says.

Dissolve to sunrise. The aftermath of an orgy, detritus everywhere.

A body is discovered, floating face down in the pool. It is the poor bitchslapped writer, Proust; his cigarette holder bobs in the water beside him. The faceless cubist robots enter again to remove the carcass and deliver it to Igor, who wheels it off in a handcart.

Zippy tells Mister De Mille that he's ready for his closeup.

In the kitchen, the egg timer reaches zero, and, with an audible ping:

Fade out.

Set theory (3/12/2004)

Rich hauls me off to hear a lecture by his friend Martin from UCLA, which bears the provocative title “Is set theory about sets?” It treats the usual perplexities about the present situation, which is that something that was supposed to determine everything now seems curiously indeterminate. Most of my questions occur to me while he’s talking, but I only raise them at the reception afterwards:

– What makes definitions “natural”? because they are not, after all, arbitrary, they must satisfy intuition in some fashion; a point made by Kneale and Kneale in *The Development of Logic*. – One might think of simpler examples, like the definitions of “connectedness” in topology, where there are (at least) two ideas that turn out not to be strictly equivalent, but the relevant question here is the nature of the continuum, which has been a problem since the Pythagoreans. The status of the continuum hypothesis just shows that intuitions of “set” are no more definite and won’t save the phenomena.

– Martin emphasizes that the theory is about a system, and not about things. I agree. The axiom of infinity has always seemed to me to say nothing about the existence of an infinite number of *things*, for instance; it says we have an infinite supply of *brackets*. So this, like the rest of it, isn’t about reality directly, rather how we are going to talk about it. – It isn’t in the world, it’s in our heads.

– Mycielski had raised the objection that number theory, e.g., seems more directly connected to intuition and experience than set theory does; Martin had replied that there wasn’t any difference, that they had the same basis. – I disagree, and propose the following thought-experiment: suppose we go downtown to the bar, I say, stopping along the way at the laundromat to change some bills for quarters; we sit down at the bar, and we start playing with our change, making

geometrical patterns. Once we've sucked our audience in, we can start making bets — I'll say, give me any number of quarters, and I can arrange them in four or fewer squares. — Now: no one who is not a mathematician will believe this, but we of course know it is always possible, and we could make a lot of money getting people to bet against us. — We can't do that making bets about the first uncountable ordinal. So there is a real difference here.

— On the other hand the theory of computation seems concrete and finite, and analogous subtleties crop up with the halting problem and P/NP. So maybe. (Rich is a fan of these ideas.)

— One reason I find it hard to make sense of the foundations of mathematics is the historical implausibility of the basic thesis: people had been doing mathematics very successfully for a couple of millennia before Cantor (supposedly) explained what everyone was “really” talking about. How does this make sense? How can this be anything but a stage in a process?

— So I don't think of the apparent failure of set theory to define “set” unambiguously as any kind of crisis. It just seems like another evolutionary step; new ideas about foundations will appear, set theory will appear to be less important, and all the questions that are baffling now will either dissolve or be viewed in a very different light. But some radical departure is necessary to accomplish that.

— Topos theory, for instance, is an attempt to do this. The most fundamental ideas in mathematics seem to be set and function; set theory starts with the idea of set and derives the idea of function; category theory does it the other way around. Philosophical symmetry demands the investigation of these dual foundations.

Of course this heresy is not very well received.

The defense of the Alamo (4/6/04)

Not sure whether this has actually been done in some form: the classic defense-of-the-Alamo scene, the brave intrepid revolutionaries, members of the Resistance, trapped in a small room (knocking the windows out a la *Top Secret*,⁷⁹ etc.) as fire pours in from without. Speaking their brave speeches as one by one they're silenced by enemy fire. The difference being that every one is simply a radio, playing a different speech, some flavor of the theme in its various variations — the French-accented version of the Maqui, the Texan-accented version of Travis and Crockett, etc. — with big closeups to study their dials as they sweat stoically as the Nazis fire on them. Gory deaths scenes in which their bits and pieces get blown out. Followed by improbably long death speeches while their lights flicker out and their speech is slowly obliterated by static. Somehow I fancy all of them as antique tube radios, of the kind that used to sit on the kitchen table in the Forties and Fifties, though it would be tragic to collect a bunch of these priceless relics simply to blow them all up. But the big wooden knobs, the superheterodynic whistles, the static, etc. — Something about all this seems as good as Plato's Cave. Who has broadcast the signals that these radios are repeating? Are heroic speeches simply fragments of old bad radio programs? etc., etc.

Tuned into the cosmic radio. (Was that Cocteau's idea?) — Is there only one broadcaster, or are there many? — Recall how you used to say the radio was the collective unconscious of America.

Their hats, their wigs, their beards and mustaches.

⁷⁹ Zucker/Abrahams/Zucker 1984.

*Schadenfreude, continued (4/11/04)*⁸⁰

.... while rewriting a piece of code vaguely inspired by some chemical problems, I came across the quick-and-dirty solution to the problem of deciding whether a chain bumps into itself which I'd implemented earlier with bad conscience but used anyway, namely the naive algorithm, i.e., if you have a set of n points you check the distances between the $n*(n - 1)/2$ pairs and if one of them falls below a predetermined delta, return a positive flag. I had the nagging feeling that there had to be a better way of doing this, and last night while idly watching a mildly bowdlerized version of *Swordfish* on the tube (inspired, no doubt, by the sight of exiled hacker extraordinaire Hugh Jackman driving golf balls off the roof of his bombed-out trailer in Midland, Texas) the following argument occurred to me. — It suffices to exhibit the principle in one dimension; the generalization to higher dimensions is not exactly straightforward, but the conclusion is invariant. — Suppose you have a set of points on the line and you want to test them to make sure no two lie within some delta of one another. First fix upper and lower bounds (this takes at worst linear time). Then create two finite tilings (“even” and “odd”, as it were) consisting of intervals of length $2*\text{delta}$, offset by delta from one another, so that every point x in the set belongs to two overlapping intervals (and any other point y which lies within delta of x must lie in one interval or the other). Then go through the point set and assign each point to the interval to which it belongs in each tiling (essentially just subtracting the lower bound and dividing by $2*\text{delta}$ and then truncating). Then go through each tiling sequentially: if any interval (of width $2*\text{delta}$) contains three or more points, two of them must lie within delta of one another; break and return true. If there are exactly two points, compute the distance and check it against the minimum. If there's one point or less, skip the interval. The whole process runs in

⁸⁰ To Richard Strelitz.

linear time, not the quadratic time of the naive algorithm. — In 2 dimensions you need 4 offset tilings of squares with side 2δ and have to test for more than 8 points per cell; in 3 dimensions you need 8 tilings and (I think) need to test for more than 26 points; etc. — As always I assume this isn't original, but (as Feynman would have said) who cares; it's always more fun when you solve the puzzle yourself. — It must have been the sight of Halle Berry in the lounge chair that did it. Even if the censors left her top on.

Quibbles: if by “closer than” δ you mean “strictly less than” then you should specify “ $\delta - \epsilon$ ” to avoid the endpoint exception; and in implementing all this everything depends on being able to access the elements of an array in constant time. List access actually takes linear time, meaning that the first draft in Lisp was slower than the original. I briefly considered writing something (a la C) horribly complicated involving an elaborate array structure, but then thought better of it, and restored constant access time with a hash table (very easy to implement in Lisp); the code was quite simple, and, on an example involving 945 atoms, ran forty times faster than the original. — I'm not sure how many points you can pack into an n -cube of side 2δ under the constraint that no two lie within δ of one another, in arbitrary dimension. (It doesn't make much difference to the efficiency of the algorithm.) — You can generalize this to a statement about covers with elements of arbitrary shape, but rectangular shapes ensure that simple comparison tests suffice to determine whether a point lies inside or outside a particular tile, so there's no point in getting carried away with it.

Robert Rodriguez is now reported to be embroiled in a dispute with the Director's Guild which may compromise his involvement with *A Princess of Mars*. Bummer.....

*Bride of Schadenfreude (5/16/2004)*⁸¹

This week's pet algorithm: there's a general problem which might be illustrated by the example of a set of vectors in the plane which sum to zero; you may think of these in connection with a Metropolis algorithm, as a sort of random walk with constraint (a jiggling closed chain), and you suppose that you want to keep tweaking the vectors with independent perturbations — which, however, should all be “of the same size” and should preserve the property which you also want to hold for the given set of vectors, that they too should be “of the same size”. (A set of vectors with random directions and lengths with a Gaussian distribution, e.g.) — The constraint is the tricky part. The usual approach to imposing constraints seems to be to adopt the philosophy of the Lagrange multiplier and introduce the equations of constraint as additional terms in the generalized energy you're trying to minimize; this way large deviations are discouraged rather than forbidden. Another way to do it would be to try to solve the equations of constraint beforehand, though usually this seems too hard. But in the case of n displacements on the line, at least, there's an easy way to accomplish this: you pick a point on the $(n - 1)$ -dimensional plane through the origin defined by the (linear) condition ($\sum x[i] = 0$), and then return its coordinates in n -space. Unfortunately it isn't obvious how to generalize this to the case, say, of a set of rotations (or homogeneous transformations) whose (noncommutative) product is the matrix identity. — But, *mirabile dictu*, for “small” (i.e. “effectively infinitesimal”, which for rotations is usually something like a degree) perturbations the equation of constraint turns into a set of linear equations on the infinitesimal generators of the group elements, and the same strategy can be employed. — I haven't coded it as yet, but this idea does not suck. More anon.

⁸¹ To Richard Strelitz.

Keynes Redivivus (5/16/2004)

Conversation: “How’s it going?” – “I was all right, but I’m beginning to suck.” – “In the long run, we all suck.”

– 637 –

Advice to the lovelorn (5/26/2004)

“As for the rain of manure, let a shit-eating grin be your umbrella.”



— 638 —

*Humpty Dumpty (7/4/04)*⁸²

A note on the direction of time (ignoring global considerations): you think of the reason it goes one way and not the other (properly: not both ways at once; after that the distinction between past and future is just a matter of labels) is just the reason that, once Humpty Dumpty's had a great fall, you can't put him back together again. But isn't this just a question of computational difficulty? It's easy to break Humpty into pieces, but it's a difficult combinatorial puzzle to figure out how to

⁸² To Richard Laver.

fit all the chunks of eggshell back into one smooth surface. In fact you could look at the decomposition as the verification of a proof that Humpty consists of that set of pieces, and the reconstruction as the process of finding that proof. The latter, obviously, should be harder. So this is the connection of the direction of time to P/NP.

Spider-Man (7/8/2004)

The particular genius of the character lies in this, I think: there is a beautiful scene in *Modern Times* in which Chaplin and Paulette Goddard have momentarily escaped their tormenters by fleeing into the suburbs and are lying in the grass beside a sidewalk; regarding the affluent opulence around them, Charlie spins a fantasy about the two of them ensconced in one of these mansions, living a life of perfect ease — we see them seated at the breakfast table, smiling, leaning out the door to get a couple of squirts of milk from the family cow (the concepts of delivery and refrigeration are apparently unknown to him) — plucking oranges from the branches of a convenient tree — finally they settle down to eating the juicy steaks that have materialized on the plates in front of them — and start sawing away furiously with their knives. It takes a minute to realize what the joke is: even in this, their wildest dream, neither one of them can imagine a *tender* steak.

It's something like that with the geek fantasy of becoming a superhero, of acquiring power and freedom — it harbors still that inner anxiety, the certainty of rejection: you know no matter what you do they'll still find a reason to hate you; that even when you save them they'll find a reason to forget it, and blame you for everything instead.

You may already be a Wiener (2004)

Much later, about ten years after I'd composed the fucking thing, certainly long after I'd given up getting a real job, I happened across an ad in the paper for an editorial assistant, sent in the résumé, and by some miracle the guy mailed me back.

I rode my bicycle downtown through a torrential downpour to meet him for lunch at a trendy bistro where — naturally — I had once been the janitor — getting thoroughly soaked in the process, and we talked for an hour or so while I dripped onto the table between us. He was an entrepreneur who had made a bundle in educational software and now wanted to write a book — not about that, but about what he had learned during his earlier career in management. Somewhere he had come across Norbert Wiener, it had resonated, and now he wanted to explain the gospel of the prophet of cybernetics to the world of business.

I agreed emphatically that feedback was an important concept, adducing many hypothetical examples while trying to disguise the origins of my insight, which had come not from listening from on high to the wisdom of the shop floor, but from decades of vainly shouting the obvious at idiot superiors who had had, in the classic formulation of Perelman, foreheads only by dint of electrolysis.

Thus I did not try to explain that it had been my observation that, pace conventional wisdom, talent did not necessarily rise to seek its own level in an organization, but that in most cases a sort of temperature inversion took place, and a thick dark layer of stupidity and incompetence in lower-level management (sometimes, as in the case of the local newspaper, extending all the way to the nominal CEO and beyond into the bureaucracy of whatever conglomerate owned and exploited the organization) prevented the formation of convection

currents that would, in a state of nature, carry it upward. And that in consequence what he was so generous as to refer to as feedback was usually considered insubordination. — Time enough to explain that later, I figured. — In any case by some miracle he was taken with me,⁸³ and gave me a copy of his manuscript to look over.

But now, alas, something snapped. I suppose it was inevitable, given the long history of frustration, the fact that all this was predicated on a book⁸⁴ which I had mastered in high school, the rage I felt at finally getting the job I should have been able to get thirty years earlier — in any case I worked on his project for about a week. His manuscript was 30 or 40 thousand words; I read it four times, read five or six other books that seemed relevant (two by Wiener), generated 15,000 words in notes, and (via email) turned them in. — A stunned silence followed. — Finally after a few days I enquired and got an incoherent response; followed by a check for a thousand bucks which was clearly intended to purchase my silence.

Obviously I'd intimidated the poor guy. But I couldn't help myself.

{...}

I found out later he was worth a hundred million dollars. — What can I tell you. Fucked up again.

{...}

Later when I became a ghostwriter to business students I discovered that “feedback” had in due course become a familiar buzzword in

⁸³ Oddly enough though this was about as likely as being struck by a meteor I regarded it as natural: as if for once normality had chosen to reassert itself. — Obviously I was never a realist.

⁸⁴ Norbert Wiener: *Cybernetics, or Control and Communication in Man and Machine*. Cambridge: MIT Press, 1948.

managementspeak; though with typical Orwellian irony it had been redefined to refer to the process of informing underlings of their shortcomings, and thus was not “received” but “administered”.⁸⁵

And learned moreover that this was inevitable, because the entire purpose of “leadership training” so-called was to steel the indomitable will of the executive-wannabe to *ignore* feedback; most especially from subordinates and the press. — Heaven forbid that anyone should point out your egregious blunders, but if they did, one should simply refuse to admit the possibility of error: reality was malleable, something to be shaped by will and the power to command; you could not tell the little people what to do if you could not first tell them what to perceive and think. — One could never acknowledge mistakes, much less be seen attempting to learn from them. This was the price of greatness...

But don't get me started. — Really. Don't get me started.

⁸⁵ Indeed countless videos purporting to illustrate the appropriate proportions of stick and carrot litter the wastelands of YouTube.

Footnote

At the Battle of Kursk, the largest tank engagement of the Second World War, a weakness of the Red Army was that command tanks could be easily identified by their distinctive antennas, since they were the only ones with two-way radios. The Soviets could not imagine any reason why subordinates might need to talk back to their commanders. Their only function was to follow orders.

*Ramseyville redux (2/7/05)*⁸⁶

...There's an old gag I absorbed, improbably, from an early novel⁸⁷ Michael Crichton wrote with his brother, about dope smugglers at Harvard: an aside dropped by the protagonist as he reflects on the provinciality of the Boston newspapers; he remarks that a typical headline might be something like "Saugus Man Injured in New York Nuclear Holocaust." This came to mind once again when I picked up the local paper last month (once a month is usually enough) and discovered a front page story about the funeral service of the one person out of the 150,000 or so killed by the recent tsunami who happened to have come from Boulder — rich with eulogies by friends, photographs of relatives sobbing, etc. The late lamented appears to have been one of those wealthy globetrotters who love to hang their hats on Pearl Street between sabbaticals in Nepal; her misfortune, obviously, was to choose this inopportune moment to soak up some rays on the beaches of south Asia. — I'm sorry for her, her friends, and her family, of course, but doesn't it exhibit appallingly bad taste to magnify the significance of a single death in this fashion? Unless you really do believe this is the center of the universe... .

⁸⁶ To Richard Strelitz.

⁸⁷ *Dealing: Or the Berkeley-to-Boston Forty-Brick Lost-Bag Blues* [1970].

*Manin on Cantor (3/24/2005)*⁸⁸

... I was poking around my hard drive looking for something else and discovered a copy of a paper by Manin titled “Georg Cantor and his heritage”, which apparently I downloaded and forgot about [not unusual]; reading it, I found some interesting remarks on the analogy between P/NP and a sort of finitized axiom of choice (which must be why I saved it in the first place), but also the following rather strange passage:

Mumford in [Mum⁸⁹], p. 208, recalls an argument of Ch. Freiling ([F]) purporting to show that Continuum Hypothesis is “obviously” false by considering the following situation: “Two dart players independently throw darts at a dartboard. If the continuum hypothesis is true, the points P on the surface of a dartboard can be well ordered so that for every P , the set of Q such that $Q < P$, call it $S[Q]$, is countable. Let players 1 and 2 hit the dart board at points P_1 and P_2 . Either $P_1 < P_2$ or $P_2 < P_1$. Assume the first holds. Then P_1 belongs to a countable subset $S[P_2]$ of the points on the dartboard. As the two throws were independent, we may treat throw 2 as taking place first, then throw 1. After throw 2, this countable set $S[P_2]$ has been fixed. But every countable set is measurable and has measure 0. The same argument shows that the probability of P_2 landing on $S[P_1]$ is 0. Thus almost surely neither happened and this contradicts the assumption that the dartboard is the first uncountable cardinal! [...] I believe [...] his ‘proof’ shows that if we make random variables one of the basic elements of mathematics, it follows that the C.H. is false and we will get rid

⁸⁸ To Richard Laver.

⁸⁹ For this Manin cites Mumford, “The dawning of the age of stochasticity”, in *Mathematics: Frontiers and Perspectives 2000*, AMS, 1999, 197-218, and Freiling, “Axioms of symmetry: throwing darts at the real line”, *J. Symb. Logic*, 51 (1986), 190-200.]

of one of the meaningless conundrums of set theory.”

I can't make sense of this argument, and, after staring at it for a few minutes, it seems to me the problem is this: given the well-ordering as specified, suppose we pick two points p, q at random from the surface of the dartboard. The case $(p = q)$ can be safely ignored, since the likelihood of this is nil under any definition, so we can assert that $(p < q)$ and $(q < p)$ are mutually exclusive and that $((p < q) \text{ or } (q < p))$ is certain to be true. Then $\text{prob}(p < q) + \text{prob}(q < p) = \text{prob}((p < q) \text{ or } (q < p)) = 1$, but, obviously, $\text{prob}(p < q) = \text{prob}(q < p) = 0$ since each assertion states that one of the points belongs to an initial segment of the other relative to the well-ordering. — *But*, it seems to me this just says that the sets in question are not measurable, as you assume when you say that the probabilities are well-defined. — So this just says that intuitive handwaving assumptions about probability, area, etc., aren't necessarily valid when you're reasoning about arbitrarily-defined infinite sets; something you might have guessed from, say, the Banach-Tarski paradox.

Are you familiar with this argument? Isn't this the problem with it? Was Mumford just trying to score some political point, or what?

*L'alpe d'wheeze (8/10/2005)*⁹⁰

Determined to prove that good sense remains forever beyond my grasp, I set off again the other day to climb the nearest minimountain on my bicycle in midninetydegree heat, and, after a lengthy pause for rehydration at a scenic overlook (marked, as these things for some reason always are, by the roadside notice “Scenic Overlook”) which does indeed provide an excellent perspective on this city of carnal policy, took a minor detour on my way back down the hill to cut through my old neighborhood (one of my twenty or thirty old neighborhoods) and check out a movie shoot which some enterprising location scout decided to drop this week in Boulder. Finding an impressive armada of trailers, trucks, lighting apparatus, cables, generators, etc., in evidence but no cameras deployed, I took a couple of minutes to chat up an assistant assistant assistant director who was stuffing his face at a buffet table set, on the evidence available, by very upscale caterers, and discovered that, sure enough, everyone was At Lunch, and not due to return to work for an unspecified period. Meanwhile half the Boulder police force was hanging around trying to look like Security, awakening that sense of unease we of the lesser breeds feel in the presence of The Heat, and deciding me against the lengthy stakeout which might have satisfied a few of my remaining points of curiosity about major motion picture productions, e.g., does the focus puller get to ride on the dolly like the camera operator during a tracking shot, or does he have to run alongside? (Surely that wouldn't make sense, but there are, after all, class issues involved.) So I passed on my chance to leer at Jennifer Garner and taunt her with her memorable line from *Dude, Where's My Car?*, i.e., “You guys are sucky boyfriends”, and no doubt get her to autograph my ass with her foot, and continued on my way. — Only later did I discover that she too was on the Tom Cruise hit list, perhaps before even Scarlett, certainly before the hapless Katie. — And did I mention the bombshell

⁹⁰ To Richard Strelitz.

Spanish maid from *Big Trouble*, Sofia Vergara? Was there anyone Cruise missed?

Perhaps you noticed the recent op-ed piece in the *Times* on the history of payola. I found it interesting, if not exactly surprising, that this has been a universal practice roughly since the dawn of time, and was unaware (not having given the matter much thought) that the famous scandal of the Fifties was mainly a kind of show-trial exhibition designed, with malice aforethought, to club to death the infant Rock and Roll in its cradle and advance the cause of cleancut whitebread artists like Pat Boone. (I guess this antedated Pat's metal period.) — The principal moral you carry away from this analysis, as from so many others, is that the music industry (so-called) consists for the most part of an army of middlemen who seize upon every opportunity to line their own pockets at the expense of both producer and consumer. No wonder they're all terrified by the digital revolution: their days, obviously, are now numbered....

Looking over the proposals reported in the *Times*, it is somewhat reassuring to see that under the pressure of repeated public humiliation at least some of the NASA guys finally seem to understand where they went wrong with the shuttle, and now grasp the essential elements of a solution: a heavy-lift unmanned booster (with nearly the payload capacity of the old Saturn 5, and using a variant on the original engine) based on proven technology, and a separate manned vehicle which reverts to the old well tested idea of sticking a (cheap and essentially disposable) capsule on top of the rocket where ice, foam, stray bolts, pocket change, etc., can't fall on it and accidentally force a billion-dollar writeoff. Unstated but probably playing a significant role in these decisions is the embarrassing realization that the Russians (who as I heard it long since either stole the plans or reverse-engineered the design, built a prototype, assessed its cost effectiveness, laughed hysterically, and stuck with what they had

already) did the right thing in passing on the expensive giant-spaceplane idea, which is why at the moment they can fly to this ridiculous space station we insisted on building and we can't. — The guy quoted states the essential point exactly: the shuttle is an impressive piece of engineering, but way the hell too complicated ever to be reliable. — Whether or not NASA can now run their operation as cheaply as the Russians do (three hundred million a year, no more than twenty or thirty million to build each capsule) is of course doubtful, but at least this novel lurch toward sanity marks a step in the right direction.

This article followed on the heels, as it turned out, of my accidental discovery of a commissioned NASA history of the shuttle program Reading this study, which as the first of three volumes deals only with the prehistory of the project and its progress through the decision by Nixon to fund it, is a real revelation.

First (as actually I still remember from my childhood), most of the wishlist for manned space exploration was dreamed up by Von Braun in a series of articles in *Collier's* in 1952 (the inspiration for Walt Disney's television show circa 1954, and also for George Pal's 1955 movie *The Conquest of Space*) — i.e., a space station, a fleet of shuttles, and expeditions staged from Earth orbit to the Moon and Mars — and (save for dropping the classic rotating-wheel idea) hasn't changed since. In the meantime, however, the rationale that knitted the whole scheme together has vanished.

It was obvious from the outset, for instance, that radio retransmission would be, in modern parlance, a killer app. But when Clarke first described communications satellites in the Forties he took it for granted that they would require continuous maintenance, and would, therefore, have to be manned; mainly to have somebody on hand to change the vacuum tubes. (Von Neumann in "The General and Logical Theory of Automata" [1948] projected a practical upper bound for the size of an electronic computer of about ten thousand

tubes, because they burned out too often to build anything bigger.) Even when Von Braun first described a toy (because unmanned) version of his space station in the early Fifties, he assumed that the effective lifetime of its electronics wouldn't be more than a couple of months. But already by 1958 Vanguard managed to stay online for six years; so much for the need for a shipload of technicians with spare 6L6GCs and soldering guns.

Again, though it was always assumed that being able to look at the weather from orbit would revolutionize meteorology, it was somewhat less obvious (since television was in its infancy) that you wouldn't need a meteorologist looking out the window to make the observations. And though everybody always wanted to put telescopes outside the atmosphere, nobody thought they could be automated. (Nor could anyone anticipate that outgassing, etc., make the vicinity of manned spacecraft a very bad place to operate a telescope, and that you want to put it in a cold quiet orbit all by itself.)

As for the military applications, these were at first supposed to include actually dropping bombs; but missiles assumed that function. The other obvious task was reconnaissance, but (as it turned out) this was also immediately automated, and the first spy satellites were orbited in 1958. (It took a dozen tries to get everything to work, but they got on the job right away.) Real film (recovered periodically by re-entry capsule) was, however, used for at least another decade, which made the idea of on-demand launch and recovery attractive to the Air Force — and, as it turned out, two critical parameters in the design of the shuttle as we have it today, the size of the cargo bay and the delta wings which present a large surface that must be protected by heat shielding, were determined by the perceived need to be able to launch and recover Big Birds and to be able to make single-circuit photoreconnaissance polar orbits and then veer a thousand miles off the established flight path to return to Vandenberg — not possible with the otherwise more practical small straight wings. So as it turned out the shuttle as it finally materialized had already been rendered obsolete by the perfection of the CCD array, sometime between the

moment when the design was frozen and its actualization. Of course bureaucratic momentum carried it forward anyway.

As for what robotics has done for planetary exploration, all that is obvious now that we've all seen the surface of Mars and the rings of Saturn, but when Von Braun was dreaming everything up it wasn't clear that you could even send Morse code across the solar system, let alone drive a rover by remote control and watch it on television.

So after all is said and done we end up orbiting astronauts to study the effects that weightlessness has upon them (and no need for that if you plan on spinning the spacecraft on a long mission, as even the op-ed columnist in the *Times* saw right away) and doing a bunch of silly high school science fair experiments that would hardly have filled an episode of *Mister Wizard*; who, however, didn't piss away a billion dollars on every show.

In fact the only sensible rationale that remains for manned space flight, after everything else has been automated, is just the one that NASA most energetically resists, namely, tourism and/or adventure travel. (Why they should resist is an interesting study in institutional psychology, and rests, I think, on their fear of losing control of the narrative of space exploration; which is precisely what most pisses me off about the whole organization, but never mind that now.) — And in re this, apparently the Hilton chain, circa 1970, had plans to build an orbiting hotel as soon as the cost of putting cargo into orbit got down to five dollars a pound; a goal which at that time seemed within reach.

Bringing up the second, rather depressing, point, that though I've seen a number of plausible postmortem analyses by disillusioned space cadets which blame the fact that everything ended up costing a hundred times the original estimates on the inefficiency/incompetence of NASA, they don't say anything that wasn't anticipated by the guys who wrote the specs for the shuttle in the first place. Commercial aviation was always their model, 24 hour turnaround was the

seemingly attainable objective, and, after extensive analyses, they decided on reusable engines and recoverable boosters and reusable thermal tile protection (as opposed to some kind of replaceable ablative shield) for an aluminum airframe (as opposed to some more expensive combination of titanium and other exotic metals) because these choices were supposed to save money. And, probably most important, they saw that the combination of electronic sensors and computer monitoring should allow onboard checkout, and eliminate the need for the 20,000 technicians who attended each Apollo launch. Since the simplest way to estimate the expense of operating an aircraft is just to count how many support personnel are required for every flight (even for the SR-71 Blackbird, e.g., this was only about forty), it would seem that they started out, at least, with a grasp of the crux of the matter. — On the other hand, since I saw some manager quoted as boasting in re the safety issue after the Columbia disaster that it took a million signatures to get a shuttle flight off the ground, obviously they lost sight of it somewhere. (One must suspect with malice aforethought, since the simplest description of the *raison d'être* of the shuttle program as it now exists is that it is a full employment program for flight controllers.)

How exactly they veered off the rails is an interesting question. Were they just wildly overoptimistic? Were they so blinded by enthusiasm that they lost sight of engineering reality? Are any of the shuttle design requirements actually attainable?

I don't know the answers to these questions, but I suspect what happened was that they took a number of problems they thought they'd solved in isolation (reusable liquid-fueled engines did exist, e.g.), observed that there seemed to be no fundamental difficulties with scaling up the solutions separately (in running similar engines at much higher pressures, e.g.), and then assumed they could add them all together. But apparently something here is not linear.

(In fact it almost seems as though they looked at the X-15 program, which ran off a string of 200 successful tests on a fairly rigorous

schedule, noted that it flew to 350,000 feet at speeds up to 4500 miles per hour, and then said, Well, all we have to do is multiply by four in each slot.)

With the benefit of hindsight reusability looks like a chimera, because maintenance becomes so difficult you end up practically having to rebuild the orbiter after every flight; it seems more straightforward to use simple disposable modules instead, in particular solid- not liquid-fueled boosters (on which there doesn't seem to be any upper limit on practical size: motors with thrust equivalent to the Saturn 5 were tested successfully in the Sixties, and it was thought at the time that they should easily scale up at least another order of magnitude.) (The size of the existing shuttle boosters was determined by the maximum diameter of cylindrical sections that can be shipped by rail, i.e. 13 feet.) — Also if you keep building new things, there's an opportunity for the design to evolve; and the only argument that justifies blowing so much money on this kind of thing (though you never hear it stated clearly) is as a sort of pure technological research — i.e., doing something outrageously difficult on the assumption that you will, as it were, derive useful corollaries in the process. (Thus the justification of the Apollo project, after the fact, was often said to be that it encouraged the development of integrated circuits, miniaturized computers, advanced materials, Tang, etc.) — Otherwise you end up trying to sell the idea that doing the same thing repeatedly is a sort of (dull) experiment in itself; which sounds a lot like what the justifications for the shuttle program have become. — The *reductio ad absurdum* being the space station, which is the grand gesture of postmodern science, an experiment with no subject save itself; and the latest shuttle flight, which has mainly been about studying the shuttle. (I assume not many will take interest in all the publications they're generating for the *Journal of Foam Insulation*.) You might as well justify taking the same test over and over again on the grounds that you were learning valuable lessons about marking marks on paper.

Which brings us to the third and most dismaying point: if you read the

history, which degenerates with alarming rapidity from a fascinating tale of engineers' dreams into an endless repetitive nightmare of committee meetings, political maneuvering, and design decisions dictated by the OMB, you discover that all of the ideas you hear proposed as alternatives to the current system — the scramjet and its liquid-air variants, the littler spaceplane (aka Dyna-Soar or X-20), even the nuclear rocket engines on which any realistic expedition to Mars would have to be predicated — were proposed, designed, built, and tested in the Sixties, and then abandoned and forgotten. — Inevitably you're overwhelmed by the sense that having passed through the Golden Age of the Sixties and the Silver Age of the Seventies, we are now arrived in a dismal Age of Brass; and there are destined to remain.

Well, enough of this merry sport. — And off on a voyage to Girls Gone Wild Island! No rules! No parents! No clothes! — Where were all these sexcrazed coeds when we were in school?

Later.

Anxiety dream (8/24/05)

– delivering newspapers – old Jeep – take a different route (trying a variation on delivery order) – through a downtown district – a few cars – up to a stoplight turned red on a hill – light turns green, clutch slips so much that the car rolls backwards – needed a running start – backing down the hill and the brakes don't work either, frantically trying to get the car to stop, rolling into the wrong lane and running up against a curb – trying again, trying to keep the car rolling and time the light so I don't have to stop – some guy ahead of me at the light who won't move out when the light turns, screwing it up – getting through and realizing [a] that it's started snowing and I have no bags and all the papers have been thrown without them [b] I don't remember the route as well as I thought, just guessing where the papers should go – turning right to go down the hill and now not being able to stop – dodging cattle who for some reason are grazing all over the place – missing them by a miracle – finally wiping out and sliding to a halt in somebody's driveway – remembering that I can shift into four-wheel drive and get out of this – not sure I remember how to do this either but succeed – trying to back out of the driveway – wedged in – going back and forth many times trying to turn around and get out – realizing finally that the car blocking me on the uphill side is a cop, and now I'm going to jail –