## (v)

## The Notebooks of Leonardo Garbonzo (1975)



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## Song

Snarks do it
Snipes do it
Critters crawling in the pipes do it Let's do it
Let's fall in love.


La vita nuova

One of my favorite characters on the faculty at the Institute was a gentleman named Charles Newton. I remember him as short but vigorously erect, without much hair, and invariably clad in elegantly tailored gray suits. He had nebulous duties of cosmic significance as Assistant to the President ${ }^{1}$ (then DuBridge), but also served time as an English instructor. I drew him in the lottery for the freshman requirement, and we hit it off at once even though I usually slept through his classes and our conversations generally took place in his office when we discussed papers I had or hadn't written.

His background was typical of that generation of faculty, in that nothing had come easily for him: he'd worked his way through the University of Chicago during the Depression, taking eight or nine years to get done. - This was why, he explained to me, the formidable old men who ran the school habitually wore such grim expressions, and expected suffering to be our lot: they had never known Fun, and knew no reason why we should either. ${ }^{2}$

He was, however, unlike his peers. He had the universal curiosity of the Renaissance man, and was fascinated with the new world taking shape around him: he went down onto the Sunset Strip during the

[^0]riots ${ }^{3}$ to explore them for himself, insisted I should read Richard Farina, assiduously studied psychedelic music (like most sentient creatures, he enjoyed the Grateful Dead), and was delighted later when he discovered I had apprenticed myself in a garage band.

He told me once he thought the perfect camp gesture would be to frame the Mona Lisa in fur. I never quite figured that one out, but then I never figured camp out, either.

He was conservative in some respects, of course - dismissive, for instance, of the idea that science fiction could be considered literature, despite my enthusiastic pitch for the merits of Delaney; by reflex a believer still in the strict distinction between High and Low culture. Since at that point the principal influences on my philosophical development were Galois, Whitehead, Russell, Mad magazine, and Marvel comics, I was not.

In fact I think my real moment of recognition occurred around this time, when I was reading Fantastic Four Numbers 49/50 [1965], and realized that Johnny Storm's journey through Negative Space, guided by the alien superhuman Watcher, to fetch a weapon to defeat the (almost) omnipotent Galactus, was exactly the same as Faust's descent into the underworld to obtain a magic tripod from The Mothers ${ }^{4}$ and that it was obvious Stan Lee and Jack Kirby had not stolen the

[^1]idea from Goethe, but rather had invented a functionally equivalent narrative episode completely independently - Jung would have said, by virtue of their access to archetypal material. ${ }^{5}$ - Thus realizing that access to these archetypes was not restricted by class, as the origins of all known story elements in folk tales and legends demonstrated. After I saw this, at any rate, I never worried about what I was reading bore the T.S. Eliot Seal of Approval. All roads led to the inner truth. It was a wheel. Any spoke might lead to the hub.
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I remember one afternoon we were talking as we walked through the city. He was going to buy me lunch at a restaurant, but, as we were about to enter, I realized I was barefoot - in California I went barefoot all year round - and had to point out this meant they probably wouldn't let me in. - "Ah, your freedom is your limitation," he said. (This seemed self-consciously Elizabethan, and I suspected the influence of Hallett Smith.) - I shrugged, it seemed obvious: you win the point, dude. - Callow lad that I was, I had no idea he had numbered my days and pronounced my doom.

Though I could occasionally write I was in those days generally inarticulate, and what I appreciated most about him was a sort of inner magnetism, some kind of empathetic wisdom that managed to draw things out of me I hadn't known I could express. It was on one such occasion that we were talking about the custom of keeping journals, and he asked me if I'd ever tried it. I said that I had, but - I

[^2]paused and here to my surprise suddenly realized exactly what the problem had been - they always came out like Dostoevsky's Noted from the Underground, and I had to give them up immediately. - He laughed and said he'd had the same experience, he thought they always turned out that way. I found this immensely reassuring. ${ }^{6}$

Thus though I've kept journals since, they have been by design occasional, erratic, elliptical, and when apparently confessional deliberately ironic; introspective only by indirection. They have usually been provoked by some change in circumstances, and so, oddly enough, they all tend to begin the same way, by quoting Dante: Incipit vita nuova.

[^3]Whatever the difficulty of solving philosophical problems, it soon became apparent they were easier than the problem of finding employment.

Back in the day, before every Stanford dorm room housed a future billionaire, there was current among geeks a myth of the Real World: an unfathomable realm of which we knew nothing; one whose mysteries were deeper than the callow trivialities we had mastered the Carnot cycle, plate tectonics, the principle of least action, the solution of the Schrödinger equation by separation of variables -what-you-will.

But of course we'd learned all about this world already, and its rules were simple: when you got out of college, they sent you back to high school. There you resumed your career as a social pariah, and this time no one was going to make the mistake of letting you ace the tests and leave.

You had to stay, and if you still couldn't get a date for the Prom - as if - your life was as good as over: you'd never have money, and you'd never get laid, save by unauthorized accident; because the tribe had labeled you a cull to be eliminated from the gene pool.

At first it seemed there was a way around this, since after all up until this point in my life I'd never been employed except as a computer programmer; and though I did not regard that as a particularly satisfying pursuit, it would pay well enough to take care of the student loans for which the hounds of the NDEA were baying at my heels, buy me a suitably distressed Jeep, fill in the holes in my library, and secure the rude cabin in the mountains where I would write Notebooks 1914-1916/1973-1975. - Anyway, this was the well-established
practice: if you weren't going to get your doctorate and do research the only real employment, so far as I was concerned - you had to take the washout job. And this was the washout job.

Moreover, as I've explained, I wanted a computer I could steal time on to perform my own Forbidden Experiments; and this was long before anyone could afford his own.

## - Therefore, etc., QED. (As my old edition of Euclid always put it.)

This plan made perfect sense, but since $I$ had made it of course it had to fail. As it turned out there weren't that many places to look for programming jobs, all of them were embedded deep within organizational fortresses surrounded by crocodile-infested moats and high castle walls manned by hordes of witless HR bureaucrats pouring boiling oil on the supplicants beneath, and no catapult I devised could hurl an application over them. Though like a fool I kept trying.

And there were a lot of supplicants. I was only one of an army of Boomers who had emerged from college into an economy unprepared to receive them and discovered they were now supposed to work in restaurants (as a rule every waitress I met in a bar before 1980 had a Master's degree) and construction. ${ }^{7}$ - The local paper was filled with human interest stories about PhDs driving cabs. - I recall one in particular, some erstwhile postdoc at the Institute for Advanced Study who had now come to Boulder and become a baker; his example stuck in my mind because this was a guy with precisely the résumé I should at this juncture have acquired, and it made no fucking difference, he couldn't get a job either.

[^4]Finally after innumerable humiliations and repeated lowerings of expectation the seventeenth application I filed with the University of Colorado (and the third I filed for this particular position) ${ }^{8}$ led to an interview for a job as a janitor, whose outcome was, thanks to temporary confusion in the personnel department over a change in policy, interpreted as the result of a qualifying examination which I could hardly be presumed to have failed (though I was, naturally, assigned the lowest possible passing grade), and I wound up on an eligibility list; where I sat for three months while I called up the head of the relevant division every Monday morning at precisely 8 a.m. to remind him I was looking for work. - When he got to the bottom of the barrel, he had to call me back. And thus commenced my professional career.

Later on, when I was at last employed, I was trying to explain all this to a hippie grad student with whom I was sharing a midmorning joint, and he suddenly caught on. - "What is that line in the Dylan song?" he asked. "You know, the one where you get an education and -" "Twenty years of schoolin' and they put you on the day shift," I instantly replied. "Subterranean Homesick Blues. Bringing It All Back Home, side one, track one." - And I sang it for him.

[^5]Look out, kid. They keep it all hid.

## Pheromones

Note on the pursuit of wage slavery:
Then and afterward I heard many lectures that began "if you really want a job..." which presupposed the speakers had some knowledge I did not possess.

For a while I took them seriously, because I bought their implicit argument, i.e., they'd been hired where I had not been.

But presently I arrived at a position in which I had done ten times as many interviews (and applied for a hundred times as many jobs) as anyone else, and acquired a unique insight into the psychology of the threshold guardians who were denying me employment. Indeed after a while I could read their minds like the big print in the funny papers. And I saw that it was never a matter of rational calculation; rather, at the critical moment it always came down to a kind of allergic reaction. I realized finally this was because there was something like a pheromone for insubordination, I exuded it, and I could not disguise my nature because I was not a better liar.

About this, unsurprisingly, no one ever spoke the truth.

## Heroes

Feyerabend tells the story in a letter to Imre Lakatos ${ }^{9}$ that Popper once visited his home in Berkeley, and was confused by the large poster of Bela Lugosi that hung in the living room; he asked whether this was the portrait of some famous philosopher. Feyerabend assured him that it was. - Of course if we seriously ask whether Lugosi made a deeper contribution to philosophy than, say, John Wisdom, the answer is pretty obvious, so (as is generally true of Feyerabend) this wasn't as frivolous a reply as at first glance it might seem.

## (Admittedly Feyerabend weaponized frivolity.)

In a similar spirit I'll admit that I take B movie auteurs and pulp science fiction quite as seriously as any academic contribution to the conversation of mankind.

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But in my experience the deepest wisdom is found in the most unlikely places. It is something like - a ray from Andromeda! - a signal from interstellar space: it emerges from the background noise at unexpected moments. This is why I always left the television tuned to the B-movie channels while I worked late at night - how else would I have discovered the scene in Werewolf of London in which the two intrepid European explorers press arrive at the brink of a lost valley in the wilds of Tibet, and encounter an aged Jesuit priest on horseback who hears out their plan to enter it in search of the rare moonflower which

[^6]will prove their doom, laughs, and says: "You are fools.... but without fools, there would be no wisdom." ${ }^{10}$

The best of all such moments comes at the conclusion of Little Big Man [Arthur Penn, 1970], when Old Lodge Skins aka Chief Dan George decides it is a good day to die. Since he has grown blind, he has his adopted grandson Jack Crabb/Dustin Hoffman guide him to the top of a high hill overlooking the prairie; here he makes a beautiful speech thanking the gods for his life, and then, as Hoffman watches reverently, lies down upon the ground and composes himself, closing his eyes. For a moment he appears to have passed, but then it begins to rain: large raindrops land upon his face; he twitches and revives. "Am I still in this world?" he asks. - "Yes," says Hoffman. - "I was afraid of that," the chief sighs. But smiles: "Well, sometimes the magic works, and sometimes it doesn't." - This says absolutely everything about intuition, and everything about the application of mathematical abstraction; this single line is better than all of Kant.

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Obviously Feyerabend was the only guy I really wanted to study with. But I doubt that would have worked out either.

For I did meet him finally, under amusing circumstances: he was invited as a guest lecturer at Colorado, and I crashed the reception given for him by the philosophy department. This was one of those late-afternoon social events at which the motheatentweedy faculty puffed on their pipes, sipped their sherry, and, radiating a warm collective glow of self-importance, feigned an appreciation of their visitor's significance even though it was obvious none of them had the faintest idea who he was.

[^7]The flavor of the occasion was exemplified by a conversation into which I insinuated myself, involving one of the resident buffoons and Our Hero, in which the local, to my astonishment, led off with a question regarding the progress Feyerabend was making on his six volume history of philosophy. - Feyerabend replied, with a wicked grin, that he'd already finished the first volume and abandoned the project. - The unwitting straight man asked Why? - Feyerabend explained that the first volume was about the philosophy of the Stone Age. - The straight man wondered what this could have been Surely, he said, it couldn't have been any good. - Ah no, said Feyerabend, that was just the problem: the philosophy of the Stone Age was too good. It was obvious that everything since has gone downhill. I found this too depressing, I had to quit. - The straight man wandered back into the crowd, shaking his head.

Of course it was obvious what had happened: the department had sent him a standard guest-lecturer form asking among other things what he was currently working on, and Feyerabend, thinking the question ridiculous, had put them on by saying he was writing a history of All Previous Thought (of course, this would have to be six volumes, in German); and no one had understood the joke. ${ }^{11}$

It was also obvious that he was a showman who enjoyed this kind of encounter for its own sake. I didn't know his history at the time, ${ }^{12}$ and wasn't aware that he had begun as a student of drama, but that made retroactive sense: it was clear that he enjoyed staging these scenes and playing them for effect.

So, though this was funny, and I enjoyed the performance, it didn't seem like there was any basis for a relationship here.

[^8]He reminded me of Feynman, actually, and I had the same feeling about both of them: that anyone with such a keen nose for bullshit could not have developed it if he were not an accomplished bullshit artist himself.

The mistrust I felt was something like what Nietzsche expressed about Wagner: "In my youth I was unlucky: a very ambiguous man crossed my path. When I recognized him for what he is, namely a great actor who has no authentic relationship to anything (not even to music), I was so sickened and disgusted that I believed all famous people had been actors, otherwise they wouldn't have become famous, and that the chief thing in what I called "artist" was the theatrical force. ${ }^{13}$ - Though less extreme: compare DeLillo's protagonist, the professor of Hitler Studies in White Noise, who has been counseled to embrace the theatrical aspect of his role, "to grow into Hitler." Observing Feyerabend I had the sense that that was essential to becoming a famous professor: a need to make oneself the center of attention; wanting to become a star.

But, anyway, here they were: the fifty philosophers! all in one room, sipping sherry. And sure enough, they were just a bunch of fucking posers.

[^9]A curious thing: the unreason that had been relegated to the distance of confinement reappeared, fraught with new dangers and as if endowed with a new power of interrogation. Yet what the eighteenth century first noticed about it was not the secret interrogation, but only the social effects: the torn clothing, the arrogance in rags, the tolerated insolence whose disturbing powers were silenced by an amused indulgence.

- Foucault:Maдness and Civilization. ${ }^{14}$
(I ask of course who was indulging whom.)
The first day on the day shift the job takes eight hours. The second day four. The third day three, which is the threshold of acceptability inasmuch as the shift begins at five and I am damned if I will be seen sweeping the floors after everyone else has arrived for work. Presently it takes two hours, then one and a half. Every day I improve.

Why does this form of work defy Parkinson's law? Because no one is looking over my shoulder. The day shift differs from the night shift in that the foremen don't all disappear after an hour or two to commune with their flasks of Wild Turkey and pass out, but they don't like leaving the office to make inspection tours either. And it is supervised work that is gaseous, that expands to fill the time available for it. Unsupervised work assumes a liquid phase.

[^10]And I loathe what I am doing. I will clean toilets for money, but I will not linger over them. I will get done as fast as humanly possible, so that my time will be my own again.

The poet is the thief of fire. The janitor is the thief of time. I will steal back from these criminals what they are unlawfully trying to take from me. Efficiency becomes my religion.

As for the occupants of the building, who might otherwise observe my labors, I want them to think that little elves do it. I cultivate invisibility. I am polite with everyone I meet, within reasonable limits (it is hard not to talk down to them), but, give or take the occasional PR session with the window squeegees on the entryway glass, if I can help it no one will never see me work.

I carry this to extremes. On those infrequent occasions when there is real labor to be performed, e.g. stripping and waxing the floors, I come in at midnight and work all night so that no one can see it. - I enjoy this, it reminds me of the old days, but really there's no choice: if I don't do it when the building is empty, they'll all parade through the wet wax.

So this defines the fundamental conflict. It can be stated in etymological terms. Dr. Johnson defined a janitor as "A door-keeper; a porter." One who like Janus looks both ways. And this is my position. I must present one aspect to those who observe me, and another to the job. I labor in the service of the two-faced god.

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Imagining a history of the profession. The names and dates of the pioneers in the field. - "Ralph, 1765-1827. First to characterize a recalcitrant piece of machinery as 'that son-of-a-bitch'."

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Absurd though it must seem even to myself - another of the nested series of jokes in which I have embedded myself - I move among them feeling like Byron's Corsair:

That man of loneliness and mystery
Scarce seen to smile, and seldom heard to sigh...
Lone, wild, and strange, he stood alike exempt
From all affection and from all contempt;

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An officious new administrator, determined to spread bureaucratic order throughout his domain, leaves an irate note one day demanding to know what my hours are. In response I post a neatly printed card labeled "Office Hours" next to the door of my closet. " 5 a.m. to 1:30 p.m.," it states, "with certain fluctuations. Requests may be submitted in writing."

This makes me a hero among the graduate students at once, but of course no bureaucrat is so easily daunted. He enters my closet a few days later to ask me to change a light on the second floor. "Strictly speaking that's not my province," I tell him, "and therefore I haven't got the requisite keys, but you unlock the door I'll be happy to do it." He leaves to fetch them. - A guy who witnesses the conversation regards me with wonder. "Janitors don't use words like province," he says. - I laugh.

Sun-burnt his cheek, his forehead high and pale The sable curls in wild profusion veil;
And oft perforce his rising lip reveals
The haughtier thought it curbs, but scarce conceals.
No shit.

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For a while I perform experiments in dividing my attention. I discover it is not advisable to do so one morning when I am particularly anxious to make better use of my mental time, and try to concentrate on a mathematical question about field theory while going through my other motions. After an indeterminate period I come to myself standing in the middle of a partly-mopped hallway, staring blankly into space. I have no idea how long I have been there, probably no more than a couple of minutes, but the experience is a trifle frightening and I don't care to repeat it. After this I make it a rule to focus on the job at hand until it is completed. Then I can think about whatever I want. Not before.

The reality principle is due a certain reverence, after all.

## The Notebooks of Leonardo Garbonzo (1975)

The sensuous awakens, not yet to movement, but to a hushed tranquility; not to joy and gladness, but to a deep melancholy. Desire is not yet awake, it is only a gloomy foreboding. In desire there is always present the object of desire ... The object of desire does not fade away, nor does it elude desire's embrace, for then indeed desire would awaken; but it is, without being desired, present to desire, which just because of this becomes melancholy because it cannot come to the point of desiring.

- Kierkegaard, Either-Or.

Moreover I have felt the pang; and he who has suffered, as they say, is willing to tell his fellow-sufferers only, as they alone will be likely to understand him, and will not be extreme in judging of the sayings or doings which have been wrung from his agony .... Therefore listen and excuse my doings then and my sayings now. But let the attendants and other profane and unmannered persons close the doors of their ears.

## - Alcibiades, in Plato's Symposium.

When they were one evening together at the Miss Cotterells', the then Duchess of Argyle and another lady of high rank came in. Johnson thinking that the Miss Cotterells were too much engrossed by them, and that he and his friend were neglected, as low company of whom they were somewhat ashamed, grew angry; and resolving to shock their supposed pride, by making their great visitors imagine that he and his friend were low indeed, he addressed himself in a loud tone to Mr. Reynolds, saying, "How much do you think that you and I could get in a
week, if we were to work as hard as we could?" - as if they had been common mechanicks.

- Boswell, The Life of Samuel Johnson.


The Dark Lady confers with her graduate advisor.

## (i)

Eventually you must tire, of dying of a broken heart.
(ii)
" These words we say and hear, and we are understood and we understand. They are quite commonplace and ordinary, and still the meaning of these very same things lies deeply hid and its discovery is still to come." [Confessions, Chapter XXII.]

In Wittgenstein as in Augustine, philosophy is original sin.

## Rosencrantz and Guildenstern at the pool ball

Night scene, walking.
A passage through the student ghetto. The odor of dope hanging in the air. Music coming out the windows.
"Why is it," I ask him, "that I have the constant feeling I am walking around with a gun being held to my head? Is that 'maturity'?"
"No," he says after a pause. "I think it's something else."

Chili for dinner. A case of the dreaded Dead Rats. After a few mildly unpleasant preliminaries I loose a truly heinous fart. We hasten to escape it. - A couple of girls are following half a block behind us, what ought to be a safe distance, but when they arrive at the spot where I cut loose, they make loud exclamations of dismay. We look at one another and laugh.

At the pool hall the brightly colored balls shine beneath the lights, speaking to one another in the language of mechanics: the conservation of energy, momentum, angular momentum. I focus on the table, on what they are saying to one another. - Maybe that way I can avoid an attack of claustrophobia and having to contend with the constriction of the throat that makes me think I am choking. Trying to freeze out the environmental degrees of freedom. - I find myself wondering whether this is like simplifying an algebraic expression; getting terms to cancel one another out so that they may be removed. - Still I notice the waitress from the restaurant next door, making a delivery to the guys up front, some vegetarian shit: incredibly beautiful, she reminds me of Miss February. She wears a red skirt and a black leotard top, and smiles at us as if it meant something. - A long pause chalking the cue.

We talk, I fire shit off, disconnected nervous wisecracks, another way of distracting myself from my surroundings, the landscape of my fate.

- It is something like standing on a beam, and when you begin to lose your balance you start running forward because that is the only way to maintain it. - Thinking, maybe you can get to a place where you can fall off safely.

Somehow this leads to the Billboard Top 100 for 1965.
"Sam the Sham and the Pharaohs," he suggests, lining up a shot. "Junior Walker and the All-Stars."
"Jay and the Americans." I respond. "Wayne Fontana and the Mindbenders."
"Freddie and the Dreamers."
"Gerry and the Pacemakers."
"Gary Lewis and the Playboys."
"Little Anthony and the Imperials."
"Tommy James and the Shondells."
"Gary Puckett and the Union Gap."
That strikes a nerve. He looks up from the table. "Whatever happened to them?" he asks.

He pauses; frowns, puzzled.
"And why," he asks, "didn't it happen sooner?"
(iv)

Passwords you'd whispered to doormen named Otto Phrases effected with brazen vibrato Lemmas attested of Boolean rings These are a few of my favorite things.

Should my head ache Should my wind break
Should my scrotum sag
I need but remember my favorite things
And feel then no need
To gag.

## Angot

In bed, on his back, a clipboard held above his face. It had been that way with the boogeyman, he thought: keep writing, and they can't get you. Or it can't. Or you can't get yourself, but no, he thought, eschew self-reference, something abstract, something external, keep writing. Space. Time. No, not time, you have not time. Space. Was the metric intrinsic to the manifold? of course not, obviously not, what fool could have thought this, but, no, he thinks, don't give Grünbaum too hard a time about it, even Weyl had seemed confused. A manifold. A manifold with boundaries (but then what lies beyond? No.) A sheet of paper, cut some holes out of it, how many ways could you do this in four dimensions. look in Milnor, maybe, no, don't get up, you can look for it later, don't get up, don't move. (Don't move.) The physical significance of the boundaries. Faces set on heads that melt like candles. Holes. The quantum theory of the holes. Little holes. Suppose the mass of a point-particle, but what was a point-particle, never mind, suppose the mass exceeded the Planck mass, then the Compton wavelength would be less than the Planck length, inadmissible, what then. Pair production. Things fall apart (no [no]) they factor. The strength of the interaction unity. Strong. How could there be holes at all. Consider the amplitude for factorization, were the mass to exceed the Planck mass. Work it out. Throw the sheets upon the floor, don't worry about them now, just work it out. In bed, on his back, a pencil to the clipboard held above his face. When I lie down I have a great fear of falling. Strange that it seems funny. Keep writing.

## (vi)

Hallucination, driving: Watch for dwarves in crosswalk. ${ }^{15}$
${ }^{15}$ I was actually not picturing Snow White and her entourage crossing Abbey Road here. Though admittedly that interpretation is difficult to evade.


Cloistered

A dildo, a dollar
A blue-collar scholar
Why did you peak too soon?
You once seemed half a Wunderkind
But now a mere buffoon.

I sit upon a wooden chair, and practice my beatific smile. Perhaps I smile because I have hit upon some silly cosmic truth. More likely I smile because I am too tired to scowl properly. Why I am smiling seems an important question. I file it for future consideration, at some time when I can think straight. Betimes, in the absence of a reason to change my expression, I smile.

The chair is an old-fashioned desk model. It swivels and tilts at inopportune moments, threatening the delicate balance of my crossed feet upon a metal stool. I watch my feet, to make sure that they are not slipping. I notice I am wearing sneakers. I like my sneakers, because they are half in holes and show off my red socks. The red socks go well with the blue jeans, and these in company with the pallor of my complexion show me a patriot.

I am pleased with this combination. I hum a few bars of the StarSpangled Banner, and then resume my contemplation.

Each monk has his cell. Mine is a janitor's closet, cement-walled, windowless, furnished simply with the apparatus of my trade. One might ask more of a cloister, but I do not.

There is a large and foully dirty sink. A mangy red hose, the color of an ancient rubber band, has been clamped over the faucet, to facilitate the filling of buckets, the cleaning of mops. Next to the sink are the
mops, leaned upright against the wall, and next the mops, the brooms. There is a large industrial vacuum cleaner, the Hydrovac. It seems a kind of movie robot, a can on wheels, with a hose emerging from the barrel in the front: proboscis. This instrument is indispensable. In the corner there are buffing pads: the brown, the black, the off-red. Next to these are five-gallon drums containing waxes and wax-removers: thesis, antithesis.

Shelves cover a wall and a half. Supplies have been distributed upon these quite nearly at random, in keeping with the erratic fancies of those odd moments when I have bestirred myself to replenish them. There are rolls of toilet paper (the Waldorf Convenience Roll, fit, I would judge, to scrape hair and tissue from the buttocks of Hercules, let alone poor soft mortals such as I found myself to be), bundles of paper towels, cans of cleanser (Old Dutch, Bab-O), jugs of ammonia, bleach, Wescodyne (featuring
Polyethooxypolypropoxypolyethooxyethanol-iodine), boxes of trash bags and of light bulbs and of chalk, and plastic spray bottles containing mop oil, assorted window-cleaning potions, and strange red and violet fluids with which I dare not experiment.

Above the door there is a large box of telephone circuitry. Now and then it stirs, usually to produce a mysterious periodic click. For some reason this is not maddening.

As a personal touch, I have indulged the worldly urge to interior decoration: I have moved in a coffee pot, and put a poster to the inside of the door, which I habitually close in after me when I retire to practice these Custodial Mysteries. It is a portrait of Carl Friedrich Gauss, the Prince of Mathematicians. I think of him as a kind of patron saint. I have no candle to light, and so I light a cigarette.

Exhaling, I address the portrait. "Quis custodiet ipsos custodian?" I ask.

Carl smiles, but will make no reply. In fact I require none. The question is rhetorical. No one watches over me. No one at all.

I come to work at five each morning. After two hours I am done, and I sit down for coffee. Then I go to the library, to replenish my working stock. Then I sit down in the closet and read for six hours. I may take a break; this depends upon my mood. A little after one I anoint my brooms with mop oil, turn the lights out, and go home.

It is a simple life. I find that I like it. For this I get twenty-five dollars a day, and free toilet paper.

Some days, of course, I am tired.
I study the portrait. How self-satisfied the old man seems: the German gentleman, black-capped, white-haired, huge of nose; the most powerful intellect of the nineteenth century, the equal of Newton. In part, I know, this is illusion: for this was also the son of an illiterate stone-mason, a man who had fallen into depression at the height of his career, and contemplated suicide.

Someone knocks upon the door and asks for a roll of toilet paper. I give him two.

Carl and I regard one another. Had he died young, would the invention of differential geometry have been delayed for half a century? Or would Riemann have done it all himself? Could there have been a general theory of relativity then?

It seems important somehow. I think about it and I smile. In an hour or two it will be time to go.

I write everything in laboratory notebooks. - Perhaps this is supposed to make me the Faraday of consciousness, but I feel more like the B-movie Frankenstein, stitching together parts to assemble a Golem. - If it is science, it is mad science.

An interesting case of projectile mammary....

## Parmenides

Parmenides describes a vision which is Dante's turned inside-out: he is borne upon a chariot to the abode of the goddess, who greets him and then explains the Nature of Things. The Cosmic All has the form of a sphere, and its machinery forms a set of concentric rings." In the midst of these circles is the divinity that directs the course of all things... ." And "First of all the gods she contrived Eros." - The outermost sphere becomes the center, and vice-versa; like an inversion in the complex plane.

Beatrice, of course, is invariant.
But why is the female principle involved?
This should seem even stranger in Dante, who pretends to expound Catholic doctrine even while radically distorting it; making his feminine tour guide the mediator between himself and the Deity (wasn't this supposed to be the function of Christ?) and in effect elevating her to the status of a person of the (already tripartite) Deity - and this is not, mind you, the Blessed Virgin, Mother of God,
whose ascension was only acknowledged much later, but some chick he ran across in the street -

Goethe, Romantic but ironic, made it clear that in the end Faust was just another geek trying to get laid, that biological necessity was what drove (male) human exertion - that the the will to power was just the will to breed; that it was all a kind of magician's trick, a prank, a feat of misdirection: the Eternal Feminine is the flag waved in front of the bull.

What Dante sees is something different; something (why not say it) cosmic. He sees that the very possibility of falling in love at first sight - the epiphany, the showing-forth, the direct apprehension of beauty and the desire to be united with it - means that the world must have a prime mover, and it is Eros; that it is Love, literally, that makes the world go round. That the existence of beauty is a guarantee of the divine.
(xi)

Philosophy begins with wonder, says Plato. And therefore - learn to gape.
(A Nietzschean use of the emdash.)
"The laws of mechanics presuppose the existence of an inertial frame."
But what was an inertial frame?
A shoebox, perhaps. A little laboratory, floating in empty space. You needn't look outside, it should all be local. You'd throw rocks around inside, three of them, at right angles, and the lines would have to come
out straight.

It never pays to get fancy, in gedankenexperiment. A shoebox.

But what makes the lines straight?

You'd suppose you could adopt some different convention, a different sort of metric, a different definition of "straight". And then. But if the lines curved round and met, of course, that would be different, that would be topological. But your topology might be different too. Or is that the point? No, you'd just make the shoebox smaller, so small the lines didn't run together; and this was part of what you meant by "local", that your laboratory could be as small as you needed.

But then you'd have to worry about the uncertainty principle. Too small a shoebox would have an intrinsic jiggle.

A shoebox.

And what had any of this to do with that enigmatic Machian prescription, "relative to the fixed stars"?

But roughly at this point I notice I am pissing on my foot.
(xiii)
"How's your love life?" Catrina asks, mechanically.
"How's Pope Pius the Twelfth?" It may be I'm annoyed.
"Dead, I think," says Phil agreeably.
I think it likely.

I wear my pen tucked into my shirt, over my heart. I don't know when I may want to make a note, and anyway it may deflect a bullet.
(xv)

The metaphysical comic book, ${ }^{16}$ a sort of Clavsics Illustrated. I picture their version of Kant's Critique, the one I might actually read. It could only improve on the original.

Conceptual art: a movie in still photographs. ${ }^{17}$ - Better, Steranko illustrating Wittgenstein; he needed more Nick Fury.
(xvi)

Drinking milk from a shotglass, like a real buckaroo.

Recalling an evening in Pasadena when I spent fifteen minutes watching myself eat popcorn in the mirror. - The unexamined life is not worth living.
(xvii)

A nonstandard theory of sets. Not like the part theory of Lukasiewicz, but consistent with the lattice theory of the Hilbert space.

Ensembles and fractions. A category of fractions. - An algebraic

[^11]semantics, without set theory on the right hand side.
Deviant Venn diagrams. The machine-theoretic interpretation of Schwinger's algebra of microscopic measurement.
(Hilbert space should be just one model.)
(xviii)

It seemed a convenient excuse: "I heard footprints."
(xix)
"...that remarkable band of enthusiasts, the St. Louis Hegelians..."18

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(\mathrm{xx})
$$

Examining my pockets, I discover that I have been carrying a blank piece of paper around, no doubt to remind me to do nothing.

A curious expression. As if she were smiling for the camera at infinity. - The hippie Mona Lisa. (Ye gods, I think she's even Italian.)

Beatrice with hooters.
(xxii)

Philosophical dialogue, with a comic-opera plot.

[^12]A portrait of the artist, posed holding a squirt gun to his head.
Or a duel, perhaps - "Squirt guns at dawn!" - on the green, at Chautauqua Park. - Seconds in attendance. - A gypsy violinist plays accompaniment.
(xxiv)

Novelty items: balloons of higher genus.
A Klein bottle would be even better, but of course you couldn't blow it up.
(xxv)

Argument of the work:
A play is the representation of an action. Though no one has said: what manner of representation, what kind of action.

Thrills. Chills. Tequila flows as water rarely did. Sensation, adventure, melodrama. Sturm, Drang, pitiable Angst. A broken heart in every torso.
(xxvi)

## Overture

The principals are introduced in costume, striking characteristic poses:
Sunshine, a milkmaid
Catrina, a Sweet Young Thing
Philippo, a guileless Boy Wonder

Gonzago, a gypsy lad, in search of love Stefano, a wandering troubadour
Greta Garbonzo, the Nordic Bombshell
Maximilian, Count Dog, noted literary critic/ginswilling rake Leonardo, an itinerant theoretician

- etc., etc., concluding with the traditional scroll:

With:
William Makepeace Thackeray
J. Alfred Prufrock
E. Pluribus Unum
C. Richard Fagley
D. Weymouth Fogelberg Jesus Vercingetorix Higgins

Tittabawasee John Harper
Duke Bud
The Son of Tarzan

## Prologue, spoken by the Shade of Leibniz

I'd summon now a crackbrained Muse of Fire

- Not Earth, nor Air, nor Water do the thing -

To paint this scene: in words and pictures sing
The folly of the halfwit Duke. - Aspire
His paladins to grasp the world entire
Sail to the Moon with all-encompassing
Imagination; soaring on the wing,
Articulate this landscape of desire.
But metaphysical geography
Of nested monads, infinite descents,
Clocks wound in pre-established harmony,
Can't register this sequence of events.

This gearloose world, as daft as it appears Revolves about the Milkmaid of Algiers.

## A game of chess

In a quiet country meadow lit by the afternoon sun, Gonzago plays a game of chess with Horniness.

The board is set upon a table by the side of the Road. Gonzago plays white. His opponent, an enigmatic personage in a gorilla suit, plays black. Gonzago is getting killed.

The gorilla's attendants, Mammalia and Fellatio, arresting females clad in magician's-assistant outfits, stand behind him. One wields a fan, the other holds his drink, which is (of course) a banana Daiquiri. The gorilla leans back, complacent, contemplating his position. Gonzago broods. Fellatio addresses him:

How do I blow thee? Let me count the ways... ${ }^{19}$
(xxviii)

A secretary. She stops me as I am passing her office. A question, something about the air conditioning.

Addressing her with ironic gravity. "I do not know what Abyssinian idiot may have wired this building, madam; I was not responsible. I am afraid, therefore, that there is nothing I can do about it."

[^13]She smiles. She lights a cigarette as I am leaving. I suppose she always smokes afterwards.
(xxix)

A model of a brain, constructed from an Erector set. - It would look something like de Chirico's Great Metaphysician.

$$
(x x x)
$$

At the time when that particular inspiration struck, my emotional state was fraught. - Why it is that mental acuity and emotional instability so often go hand in hand is a curious question, there is some complementarity here deeper than any facile linkage of art to disease. - I left the argument unfinished, at any rate, because I knew that if I were to complete it, my purpose would be fulfilled and I could put an end to myself. - And I was afraid of that, of course, but also suspicious - it seemed a bit too cheap, a bit too easy. - Mate with the Queen and die? was that all there was to the game? - It seemed too trivial a conclusion to destiny.

Nietzsche had it wrong about the thought of suicide. ${ }^{20}$ It is not a comfort, it is a source of irritation. Your argument has derived a contradiction. One of your assumptions must be incorrect. You have to backtrack, and work it all through again. This is, mainly, a colossal pain in the ass.

- It is that, really, it feels exactly like it - when Kingsley in The Black Cloud absorbs the alien transmission designed to reprogram his brain and imprint upon it the science of the alien gods, he suffers a massive nervous breakdown: the stimulus is overwhelming, he cannot stop

[^14]thinking, his thoughts race out of his control, and every way the internal argument turns he derives another contradiction with something that he'd thought he'd known with certainty - collides abruptly and unexpectedly, as if he'd run into a wall. - He succumbs to a fever, finally, brought on by mental hyperactivity.

How little it takes to trigger it when you're in this state: an errant thought, hearing a song on a radio in another room which employs a forbidden chord change, its harmonic logic somehow brings you up against it, the boundary of the world, the wall that separates order from chaos. Your nerve endings have been sanded down, and everything is received as loud confusion, panic, vertigo.
(xxxi)

Mama Dirac to baby Paul: Mind your Ps and Qs.
(xxxii)

Death is the enemy. Time is his agent.


When Newton delved, and Huygens span Who was theoretician?

## (xxxiv)

The alchemist. - Brains I never did attempt, but I did try to build antigravity machines from Erector sets. - It was always this that obsessed me, it was this that took the place of the Philosopher's Stone. - If Faust is the type of Western Man, then the type of the American is Faust as Tom Swift. - We did not want magic mirrors, golems, flying horses, but electronic telescopes, giant robots, gleaming rocket ships. Not seven league boots, but teleportation booths and time machines. Not voyages to enchanted isles, but flights to the stars.

## (xxxy)

What I meant by "the physical Tractatus" ${ }^{21}$ -
The program suggested by the work of Whitehead and Russell adapted by the Vienna Circle in the project of the Encyclopedia of Unified Science - was to provide foundations for all of human knowledge; in principle the correct analysis of every true general proposition - what everything really meant - would be found therein.

Whitehead intended to begin with a fourth volume of the Principia, on the foundations of geometry. This would naturally lead on into the foundations of physics, since both logically and historically physics begins in geometry.

The analysis of number, i.e., entails the analysis of counting: the idea of placing the elements of two different sets in one-to-one correspondence.

[^15]The more general idea of measurement, however, began originally with problems like trying to compare the sizes of two different parcels of land - with the invention of area - and the idea of weight as a measure of, say, a quantity of grain, or volume as the measure of a quantity of water. (The demonstration of equivalence between two containers by pouring the contents of one into the other is somewhat analogous to the concept of congruence as equivalence under a group of rigid motions; the analogy with one-to-one correspondence between a set containing five apples and a set containing five screwdrivers is, however, more distant). - To compare weights already requires comparison by balancing and the rudiments of mechanics, the statics of lever arms. So geometry is inextricably entangled with physics $a b$ initio.

It is almost incredible that two such different processes as counting and measurement should have wedded themselves to one another under the concept of number. To this we owe the introduction of the idea of the continuum into mathematics. Even a couple of thousand years later this still looks strange.
(And even more incredible the Pythagorean discovery that tones also obey mathematical regularities. This must have come as a tremendous shock - measure and counting apply not simply to what you can see and handle, but what you can hear? No wonder he thought Number must rule the cosmos.)

Whitehead at any rate though he set to work on the task and wrote several books on geometry, relativity, physics, and epistemology, never quite finished what he had started in the form he had first envisioned. (His analysis of "point" was prescient, however, and looks
in hindsight like an anticipation of the strategy for adjoining ideal elements embodied in, e.g., the Stone-Cech compactification.) ${ }^{22}$

The content of physics is now very different. The geometry of landmeasurement evolves gradually into a formal system which can also describe the projective geometry of Hilbert space. But the semantic referents are entirely different.

The Schrödinger equation describes the motion of a sort of wave, but a wave which is a measure of the information that you have about a system. - The grin of Hamiltonian mechanics remains visible, the cat to which it belonged disappears. - There is this strange segue from describing a motion, to describing what you can $\begin{aligned} \\ \text { d } y \text { about it. }\end{aligned}$
(The old formulation of an ontology of observations; regarding them as propositions in the sense of Von Neumann.)

So there is this sense that logical ideas have to lie at the foundations of physics. - Or rather: some synthesis of logic and geometry, in which logical ideas become geometrical. (Or the other way around.)

> (xxxvi)

## The creature from the graveyard shift

I wasn't always on the day shift. I started out on nights, ten-thirty to seven.

[^16]There weren't any permanent positions available, and so I began as a substitute, filling in for the people who called in drunk, sick, or incarcerated.

This was explained to me by the Big Boss. His name was Chuck. "You'll start on the Roving Crew," he said.
"The Roving Crew?" I asked. It sounded vaguely piratical.
"Yes," he said. "Take this card" - handing me something which indicated by various signs and portents that I was now a Custodian, Level Two (it buoyed my spirits to discover I had somehow tunneled quantum-mechanically through Level One) - "and report to Gate 14 at the stadium tonight."
"Okay," I said. - Making a mental note to pack a flask. Which turned out to be a brilliant idea.

The foreman's name was Rex; no wonder dog he. He had the complexion of something you might find under a stone, and peered at my credentials with evident strain. These higher intellectual functions seemed to tax his faculties. I was to discover that nearly any form of active exercise taxed his faculties; he never left his office during the shift, and was usually asleep.
"All right, uh..."
"Leo."
"... Leo. You take this and report to Tom at, uh, Gate 10, Room 147."

Smiling faintly. A dim bulb. There were forty watts back there somewhere, under a shade, behind a curtain. A thick curtain.

We bade one another farewell, and I set off for Gate Ten. I stopped in
the restroom to check my flask again. Better safe than sorry.
The lead man's name was Tom. His assistant was Dick. I looked around in vain for Harry.

The deity is defined by negatives. Tom wasn't tall, wasn't short, wasn't fat, wasn't thin. He wore glasses, but he wasn't very bright, either. He didn't drool down his chin, but it was clear that once he started he would have difficulty figuring out how to stop.

I worked for him for three months and he never learned my name.
"Fuck it, er, ah..."
"Leo."
"...uh, Leo, that's good enough."
"All right."
But really we didn't work very much. Mostly we stood around talking about what we were going to do.

Indeed these were garrulous men of few words. - "Where's that fucker with the fucking keys?" - "Fuck if I know." - "Fuckin 'shit." - "I say fuck it." - "Motherfucking Tom anyway." - "Fuck him." - et fucking cetera. - I had let slip a few polysyllables, and they all regarded me with suspicion until one morning when I needed to know the time and asked "What fucking o'clock is it?" After that I was a celebrated wit.

But the true virtuoso was a character named Bubbles, a master of the argot. I thought that I could listen to him for hours until I realized that I had no choice. He was the first person I ever heard use "fuck" three
different ways in a single (short) sentence: scowling at a recalcitrant buffer, he declared "Fucking motherfucker don't fucking work." - As adjective, noun and adverb. Elegant. - He could have said something like "fucking fucked up" instead, but he knew instinctively that would have been in bad taste. I admired his discretion.

Bubbles was an accomplished raconteur. I listened to his tales openmouthed, uncertain what to believe, though the most preposterous stories received independent confirmation - his lawyer really did get him off fifteen drunk driving tickets at once, for instance, and later got charges dismissed against another denizen of the night shift who had knocked over a Seven-Eleven, by proving that, since our colleague had hit the clerk over the head with a tire iron and put him in a coma, the only witness for the prosecution was mentally incompetent and couldn't make a positive identification. (Our man did spend a month in the slammer, though, and bequeathed me a semipermanent position in the library until I begged my way off nights onto days.)

I parked illegally every night in a cul-de-sac next to the stadium, beside a sign that read "Dead End"; the screenwriting gods could not be bothered to disguise their intentions. But I was never ticketed, because I left in the morning before the parking Nazis arrived. Went home, ate breakfast, and fell into bed. - At break of day I say goodnight.

I felt curiously ambivalent about my situation. On the one hand I hated being with the others, and wanted desperately to be left alone. On the other hand I was a basket case trying to recover from a nervous breakdown, and whenever they left me by myself in a building in the middle of the night I was seized by existential terror, and had to work frantically to keep from thinking about where I was and what I had been reduced to.

Mostly, however, they ferried us around all night in a van, and let us loose en masse to clean the buildings, after which we would gather in the rooms with the vending machines and I would have to listen to the others talk. So I felt that I was trapped there, in this van, among this assortment of moral amputees and alcoholic halfwits, in these sterile interior spaces with their fluorescent lighting, and could not escape. That there was indeed No Exit.
"Hell is - other janitors!" I exclaimed to myself. Because I couldn't very well exclaim it to anyone else.

During this period I cleaned hundreds of different offices in dozens of different buildings. With practice I found I could tell everything about the occupant after a couple of minutes dumping the trash. ${ }^{23}$ Holmes with his monograph on cigar ashes was no more analytical than I. Books gave a lot away; notes pinned to the wall; lamps, decorative touches, the state of the desk, whether clean or cluttered.

Women's offices invariably displayed pictures of their children; men were less consistent. - In one lady's office I discovered upon the wall a crayoned portrayal of two whales with large smiles on their faces,

[^17]swimming side by side. A title had been penciled in: Moby Dick and Moby Jane. There was a picture hanging above it, a beautiful little redhaired girl of five or six. I fell in love with her at once. ("You'll despise me when you grow up," I told her, "but I'll worship you from afar.")

Sometimes, of course, the exercise was trivial; whole buildings could be dismissed at a glance. - It was immediately obvious that the School of Education, for instance, was populated by imbeciles; the offices were barren of any interesting decoration, and - incredible but true - in startling contrast to other departments, no one had any books on their shelves.

Other times, less so. - One night I found myself in the catacombs beneath the stage of the University Theater, cleaning the dressing rooms. They were ringed about with makeup stations, chairs before mirrors, all rimmed by rows of bright incandescent lights. All around were posted signs declaring there could be No Smoking, and mounted at the base of every mirror was an ashtray stuffed with butts. - No wonder, I thought, that we and not the Germans rule the world. No one colors between the lines. No one follows orders. ${ }^{24}$

Occasionally I would find someone working late. One night I found a young ancient historian in an office at the library, the shelves above her desk stacked with volumes in Greek and Latin. We had a brief discussion of the decline of the classical education - "Thucydides," I hazarded. - "Herodotus!" - "Very good!" she exclaimed, laughing. - On another occasion I discovered an anthropologist in a basement office trying to finish his master's thesis the night before it was due. I loved the sport of that, it brought back pleasant memories. I sold him a

[^18]pack of Camels for fifty pennies, and we talked about the poster on his wall, the one that purported to reproduce a medieval woodcut of a guy sticking his head through the sky where it met the earth to look at the machinery of the heavens. - I wanted a copy, since it so perfectly captured my existential quandary; he wasn't sure of its provenance. ${ }^{25}$

One night the van stopped at the Engineering Center, a gigantic monument to Space Age budgets which rose like a Great Pyramid from the east campus, and we piled out and made our way through labyrinthine basement passages to the elevators, which delivered us into a compact snarl of interconnected hallways to which, it turned out, the mathematics department had been exiled after some fall from fiscal grace. Tom unlocked the doors and disappeared to a quiet alcove to commune with his flask, and we fanned out randomly to clean the offices.

In such circumstances everyone generally stood around doing nothing while I rocketed ahead to avoid having to deal with them, but on this occasion after two or three rooms I came to an abrupt halt, and lingered over one particular office for half an hour. Because as soon as I stepped in the door I realized I was in the inner sanctum of Stanislaw Ulam - most impure of mathematicians, the man from whom Teller had stolen the idea for the hydrogen bomb - who had, like Gamov, retired out of the nuclear weapons establishment to this picturesque setting in the mountain West, here to assume his rightful place as - why not say it - the Crown Prince of Palookaville.

The books were not memorable; not, in fact, all that numerous, a

[^19]fraction, probably, of his library. There were some half-bound preprints, mostly his own, though I noted with interest a copy of the marvelous paper of Eigen on chemical evolution. ${ }^{26}$

He had three pictures on his wall.
The first was a reproduction of the standard portrait of Leibniz, Teutonic jowls beneath a wig.

The second was a photograph, taken I suppose at Los Alamos. He had on a self-deprecating grin, and was talking to Jack Kennedy. Kennedy was grinning too, but seemed very intent. Lyndon Johnson stood to one side, eyes downcast, looking like a vice president.

The third was wholly unprofessional, a late afternoon snapshot taken in somebody's living room; cocktails before dinner in Princeton, New Jersey. A figure in a rumpled suit sat leaning forward over clasped hands in the middle of a couch. He was looking down and to his left, as if someone had asked him what he really thought of Oppenheimer's wife and he had to think about it. It was John Von Neumann.

This should conclude with a Movie Moment: ${ }^{27}$

One evening the Crew were riding in the van, en route to some date with destiny in the nether regions of the campus. Some conversation was going on which was so pointless that I didn't care I was excluded, and since I wasn't paying attention I don't recall how some other character, a Flamer, had arrived at the necessity of explaining to his audience that Lorne Greene, above and beyond his world-historical

[^20]career in television as the star of Bonanza, had once cut a hit single. It had had something to do with a gunslinger, and the Flamer was trying, unsuccessfully, to recall the lyrics. He stammered out a couple of lines and ground to a halt.

Into the hush that had fallen over the company, a voice was heard from the darkness at the back of the van:

The story spread throughout the land
How I had beaten Ringo's hand And it was just the years, they say
That made me put my guns away
But on his grave they can't explain
The tarnished star beside the name
Of "Ringo" -
A raw unwashed male chorus echoed:

Ringo...........

Later that night the foreman told me I could leave, because I would be starting a new job on the day shift the next morning at five. I bade my comrades farewell; and (save for Shirley, the beautiful Indian girl with the perfect ass) ${ }^{28}$ never saw any of them again.

On the way home I heard a song on the radio I hadn't heard in a long time: "Walking My Cat Named Dog".

I told Stefano later I thought a memoir of the experience should bear the title A Season in Hell. - He thought that was excessive. "Maybe just A Season in Heck," he said.

[^21]The oracular aspect of the Tractatus. - In that regard it is certainly a throwback to Heraclitus and Parmenides. - The feminine principle is absent, however.

Lucretius begins De Rerum Natura by invoking Venus, but this is more like the traditional appeal to the Muse. Not the lodestar, the magnetic pole. Not the metaphysical Object of Desire.

Manfred like Frankenstein wants to conquer death; but more, he wants to resurrect his lost forbidden love - Astarte is a kind of Gothic rendition of Beatrice. - Manfred is explicitly the metaphysical rebel. - Oddly enough (or not) he seems to have been preferred by both Nietzsche and Goethe himself.

Obviously this is what is different about Frankenstein: he has no Beatrice. - But he was written by a woman! one who knew from her own bitter experience that the Eternal Feminine is destined to get knocked up and, if not abandoned, neglected and forgotten - ignored by her airhead husband while she has to deal with the pain of pregnancy and the loss of an infant child. - Charles Lamb wanted to know what Gretchen had to do with the story of Faust - well, she was a rare concession to realism; as Helen of Troy was certainly not.

And it is Gretchen who is the tragic figure; not Faust.
(xxxviii)

Ulam has a seminar, which I attend. He is a Great Man, obviously, and so we forgive him the rather self-indulgent character of the course: it consists entirely of the exposition of his favorite unsolved problems, most of which he has invented himself; he is famous for being able to come up with odd questions no one can answer. Most of
them seem rather strange to me, relics of the Polish school that thrived between the wars; the famous Scottish problem book captures the flavor of those times, when Ulam and Banach and their buddies would hang out at the coffeehouse all day, chainsmoking and scrawling on the tablecloths...

All that ended. Ulam escaped, but Banach went to Auschwitz, and did not come back. No wonder these dudes are all such fucking hawks.

I solve a few, at any rate, and generalize some others, but none of them seem terribly important. Ulam does consider some problems which are meaningful, for instance pattern recognition, which he and Von Neumann recognized very early on as the critical question for artificial intelligence, but his natural tendency is toward set-theoretic statements which to a mathematician of his generation and background must seem fundamental, but to me appear contrived and unnatural - the kind of idea he entertains about comparing shapes, for instance, will begin with something like considering objects as point-sets (usually constrained by some mild condition like convexity) in three-dimensional space, and then trying to define a metric quantifying the idea of how close they are to one another by considering the relative volume of their overlap, or something of the sort ${ }^{29}$ - which would have to be taken as a maximum overlap over two similarity classes, but anyway, this has little or nothing to do with what you really mean when you say two shapes are alike. ${ }^{30}$

[^22]One that is interesting is this: must a one-to-one mapping of the plane which, applied as an inner automorphism to any congruence, yields another congruence, itself be a congruence? - Actually no, a similarity; this follows from the observation that any such mapping must preserve lines and circles, and generalizes with alarming ease not simply to higher dimension but to many other categories, e.g. groups and homomorphisms. - Ulam gives a few variations but lacks the categorical point of view; he seems almost apologetic when I point out he is talking about a commutative diagram....

Another is the following: suppose a convex body of uniform specific gravity between zero and one floats stably in water at any angle; must it be a sphere? - Ulam points out that in two dimensions the answer isn't uniquely a circle, and makes reference to some strange relatively recent paper which purportedly solves the problem with synthetic geometric methods straight out of Euclid. ${ }^{31}$ - This multiplicity I verify more directly with a simple Fourier analysis; it seems obvious, however, that in three dimensions, where the possible surfaces are described by expansions in spherical harmonics, which are irreducible representations of the (now nonAbelian) rotation group, that the possibilities are more severely constrained. - Presently I discover that the solution follows from Schur's lemma, that any matrix that commutes with all the matrices of an irreducible representation of a compact Lie group must be a multiple of the identity.....
.....and, oh well, big fucking deal....
recognition is very similar in conception. See Le Chang and Doris Tsao. "The Code for Facial Identity in the Primate Brain," Cell, 169, 1013-1028, June 1, 2017. Remarkably, a finite set of morphisms suffices.
${ }^{31}$ This sounded interesting, but I have no idea where it might be found.

A castle in the Bohemian Alps. In a rudely furnished courtroom lit by roaring fires, hung with tapestries depicting the Birth of Venus, the Baptism of Achilles, and the Flogging of the Dead Horse of Quantum Field Theory, are assembled a Chorus of Dissipated Courtiers, who greet the entrance of the foppishly-attired lord of the manor by singing:
[I] Duke
Duke
Duke
[VI] Duke of Bohemia
Bohemia
Bohemia
[IV] Duke of Bohemia
Bohemia
Bohemia
[V] Duke of Bohemia...
[etc.]
and Phil takes up the theme:
As I walk
Despite this anemia
I know that nothing can detain
The Duke of Bohemia
Yes I
Even in extremia
Ever shall remain
The Duke of Bohemia
Yes I.....

- and, so on.

As the number concludes, ten Dancing Girls twinkle in upon their toes and hold up large letters spelling out
"E-X-P-O-S-I-T-I-O-N"
and the Duke takes the hint:
"Yes I, Philippo, am Duke of Bohemia. - Though not by birth! I acquired the kingdom in a clearance sale, with funds amassed from my financial wizardry trading sheep futures on the commodities markets."

- "But what of that?" he asks. "What news of the day?"

The Court Chronicler steps forward and, brandishing a scroll, announces that San Francisco has been attacked by a giant octopus which has wrapped its arms around the Golden Gate Bridge, quarks have been discovered in the discount bin at Woolworth's, and intelligent life has been found in Niwot.
"No shit?" says the Duke. "Niwot? didn't see that one coming."
A disturbance, off. - Upon the scene now enters A Messenger In Spartan Garb, who staggers to center stage and collapses at the feet of the Duke.
"Tequila," he gasps. "Tequila... ."
The Duke gestures to his attendants. "Quickly! Can't you see this man's been wounded?" - Indeed, there is a rubber arrow mounted on the Messenger's head which appears to go in one ear and out the other.

Restoratives are applied. The Messenger raises his head, now cradled on the lap of a Dancing Girl, and gasps:
"From the Prince of Abyssinia to the Duke of Bohemia, greetings ..." - He swoons. More tequila. - "Is that your mouth, or a goat's vulva?" - He swoons again, and is carried off upon a litter.

The Duke rises, and paces back and forth. "I should do something about that rabid mongoose," he mutters.

Whirling abruptly, and felling an unwary attendant with a peremptory gesture, he announces: "This means war!"

The members of the Chorus quail. - "But the Prince is a savage," protests one. - "A barbarian," says another. - "A teetotaller," says a third.
"Pah!" the Duke exclaims.
"He commands the dreaded Mongol Horde," points out a fourth.
The Duke dismisses this objection with an airy gesture. - "An expansion franchise," he declares. - "Summon my paladins! Leonardo! Gonzago! Stefano! the good Count Dog!"

The Court Accountant now comes forward, ledger in hand, and reminds Philippo he still owes the Brothers Garbonzo \$49.95 for cleansing the Augean stables, mooning the Lernaean Hydra, goosing the Nemean lion, and ghost-writing his last three albums on Mercury Records. "Not to mention tolerating the Erymanthian Bore," the Accountant adds. "No one was happy about that." In consequence they have scattered to the four winds, and the likelihood of getting the band back together on short notice is slight.
"Pah!" exclaims the Duke. "Tell them the check is in the mail. In the meantime - Squire!" - he snaps his fingers - "My travellin' shoes!"

His signature red tennies are produced. He addresses his Ministers: "I go, to wander my kingdom incognito. Issue double rations of Tequila, and remind the men there will be a party after the war."

The chorus resumes. Trailed by his heavily-burdened Squire, the Duke proceeds to the egress, pausing frequently for slappings of five.

And, fade out.

Lunch. A sandwich, bent cheese on wheat.
(xli)

Reading in the closet. - Napoleon: "Men who are truly great are like meteors: they shine and consume themselves, that they may lighten the darkness of the earth." - Someone walking past stops to find out why I am laughing so loudly. - Sometimes the disparity between aspiration and reality so far exceeds all conceivable bounds of irony as to threaten gravitational collapse.

Making note once again, to donate my underwear to medical science.
(xliii)

There is a song in it, I remind myself, to a familiar tune:

## If I were a janitor

And you were a graduate student

Would you drop your pants anyway?
Do you think it'd be prudent?
(xliv)

## Prometheus in Bondage

A high rock in the Bohemian Alps. A traffic sign in the background advises Watch For Falling Thunderbolts.

Stefano lies in chains. A litter of empty Tequila bottles suggests what is feeding on his liver.

Attendant are the formidable servants of Zeus who have bound him here, Social Determinism and Economic Necessity. Grim-faced giants in gray suits, they speak softly and carry really, really big sticks.

A Dramatic Chorus of Cheerleaders strike arresting poses to one side. They wave pompoms and form a variety of geometrical arrangements while reciting choral odes.

A public-address speaker is mounted on a nearby wall. Over it are heard continuously the Announcements, read by The Principal, Zeus. - He reads from an itemized list of petty complaints by the faculty and staff about the behavior of the incarcerated, hands the microphone to the captain of the football squad, who reminds everyone that the Big Game with the Titans is coming up on Friday, and finally delivers an extended homily on the theme of What Socrates Was Like In High School, which like all other aspects of this torment promises to be interminable.......

$$
(x \operatorname{lv})
$$

My favorite among all Beatles compositions is no doubt "You've Got to Hide Your Love Away"; it is obviously Lennon's, and displays his
characteristic obsessions. - But what are these? are these mine as well? - Because what is the song about, really? Not lost love per se, but saving face - the necessity of avoiding humiliation.
(xlvi)

## What experiment does for theory

Two metaphors of which I never tire: what Robert Frost said about free verse, that it is like playing tennis without a net; the fact that you can't fly a kite unless it's tied down by a string. ${ }^{32}$ - These don't say everything, but they say enough.

## (xlvii)

## Vitalism

Whitehead wanted to believe that the behavior of molecules was different in living organisms. This is vacuously true, but he wanted them to obey different laws than the laws of mechanics. As it turned out this is something like wanting to change the alphabet to write poetry, it isn't necessary.

So what is interesting about the idea is not whether it's right (it isn't), but why it is unnecessary. - Why does life look impossible?

Schrödinger's answer is that the organism is a thermodynamic subsystem running far off equilibrium; though the total entropy of the system organism-plus-environment increases, the entropy of the organism, viewed in isolation, decreases. Eventually equilibrium is restored, but for a while (metastability) Eros outruns Thanatos. - So nothing about this is impossible. It just looks really weird.

[^23]About the inability of Newtonian mechanics to explain life generally, however, Whitehead was right, though not in the way that he thought. The deeper insight was Bohr's: that Newtonian mechanics was inadequate to explain not simply biology, but chemistry. That the discreteness of atoms and thus also the stability of matter were inexplicable in classical terms.

These is a similarity in the essential point about emergent properties: that one needn't look to life as a counterexample, there's no need for an appeal to vitalism; the existence of phases of matter already demonstrates the case.

## (xlviii)

## The but of a kindly old woodcutter

A rude cottage in the Bohemian Alps, not distant from Algiers.
Here dwells Sunshine, a simple mountain lass. By day she milks her goats and sings the metaphysical blues; by night she combs ticks from her pubic hair while watching reruns of The Untouchables.

Discovered in the barnyard among a chorus of sheep, she sings her signature tune, "Thanks for the Mammaries", in the style of Connie Francis.

This concluded, she addresses no one in particular:
"Orphaned at an early age, I was brought by gypsies to this Alpine retreat, the home of Diogenes, a kindly old woodcutter who passed his days making cuckoo-clocks, uttering apothegms, and humping sheep."
[Appreciative noises are heard from the chorus.]
"He raised me in accord with lumen naturalis, teaching me the elements of animal husbandry and the principles of organic synthesis. Then one morning he rose before dawn and departed by light of the crescent Moon, accompanied only by his favorite, Emily [reminiscent noises from the chorus], vowing to march off into the hills and die with his hipwaders on. Save for the occasional postcard and a preprint outlining a new theory of the topology of the universe, I have heard nothing since."

## She sighs. "How little I know of the world."

Upon this tranquil scene now enters Leonardo Garbonzo, an itinerant theoretician who has been shipwrecked on nearby Lake Geneva.

He lurches in halfsupported by a barnacle-encrusted spar, his clothing in tatters - not that this is atypical - an electric guitar strapped to his back, a rucksack containing the Bateman manuscripts and miscellaneous other research materials dependent by a strap from his shoulder.

Plugging in to a convenient amplifier, he is preparing to annotate an expository monologue with excerpts from Led Zeppelin when he espies the Milkmaid. "Zounds!" he exclaims. "I am smitten."

He addresses her. "Come away with me. - Let us strew flowers on our bodies and dance, yes dance the night away. - Let us speak to one another of Life and Art until our pants fall off. - Let's twist again [he gyrates], like we did last summer."
"Huh?" she responds.
He tries panting with his tongue hanging out.
More witty dialogue might ensue, but here enters the hired hand, Igor, a creature of appalling size covered with menacing tattoos and
mountainous warts. - "What?" he roars. "Another of these travelling salesmen?" - He chases Leonardo three times around the outhouse before a trapdoor opens beneath the theoretician's feet and he vanishes from the stage.
"Deus ex machina," grunts Igor. "Never fails."
"Misner, Charles W., and John A. Wheeler, 'Classical Physics as Geometry'; Annals of Phyoics 2, 525-603 (1957)," says the Milkmaid.

## An encampment of gypsies

A Weird Woman at a table in a tent cluttered with props, crystal balls, astrological charts, etc. - Gonzago enters and is seated - without further ado she seizes his hand and stares at it intently for perhaps thirty seconds - mood music - says: "Your palms are balding" and casts hand away impatiently - "This won't do" - Looks into crystal ball - "I see a promising future for you in hotel-motel management ... I see a woman [G. is immediately interested] .. she is unquestionably mammalian...she is naked....she is smiling....beckoning....she is in a picture on your bathroom wall... . That's it." - "That's it?" he says. "That's it," she says. - "That's all?" he asks. - "That's all," she says. - Gonzago considers this. - "You need an apprentice?" he asks. "I warn you," she says, "it's a hard life being adopted by gypsies. The hours are long, the pay is shit, the meals suck, and you still won't get laid." - "You ever try being a wandering troubadour?" asks G. Point taken. - Commercial break. - When we return Gonzago is seated behind the table, bandana wrapped around his head and knife between his teeth. A Sweet Young Thing [played by Catrina] enters. He gazes into the crystal ball. "You will shortly meet a short, dark stranger with a dork like a fire hydrant..."

# A sheep farm on 47th Street 

$$
(x \operatorname{lix})
$$

## Wittgenstein and Heidegger

What is the point of attempting to embrace polar opposites? - A mathematical metaphor: if you try to interpret plane geometry on the surface of a sphere, lines are great circles, and thus there are no parallels, because any two intersect. However two great circles intersect in two antipodal points, not one. A way to restore the uniqueness of the intersection is to define "point" to mean "pair of antipodal points": then again two "lines" intersect in a single "point"; moreover a "line", i.e. a great circle, is the intersection of a plane through the center with the surface of the sphere, and a "point", i.e. an antipodal pair, is the intersection of a line through the center with the surface. - The result is called the projective plane. - All this is a roundabout way of saying that that the north pole is most naturally considered together with the south; and suggests there may be some rigorous statement of the vague sense that antipodes are two aspects of the same thing.

- It is precisely the ease with which I can make up this kind of thing that leads me to suspect philosophy ought to be defined not as the love of wisdom but rather as the love of bullshit. -

But what is the axis that connects the two? the realization that, when you talk about the relationship of language to reality, you must employ a different kind of language. - That philosophical logic should be more like poetry than mathematics.

The idea is strange, certainly, but undeniably fascinating.

He lies upon his back, on a bare mattress, hands clasped behind his head, staring at the ceiling of a sparsely furnished room. It is a small room, perhaps twelve feet by fifteen. The walls are concrete block, painted over a sickly green. There is a desk, and a chair, and a closet. In one corner there are stacked three or four cardboard boxes, which contain those few of his worldly possessions the mother of his children has decided he will need.

A naked light bulb stands out in the center of the ceiling. His eyes are focused on it. His is not a naturally philosophic mind, but he has had a lot of time to think lately, and he has come to recognize the importance of the distinction between the sign itself, and what it signifies; what Frege called the life of the sign. The life of the sign, he has decided, is his to make and choose, and, he thinks, if he stares at this bulb long enough, "Sylvania 75 " will come to mean something to him. He is not sure what. But he knows that it will be important.

It will not come easily, of course. But he is a patient man. He lies upon his back, hands clasped behind his head, staring at the bulb. It is a Saturday night. He has time upon his hands.

The evening is not silent. Conversations pass along the halls; the toilets flush; traffic moves down College Avenue, and the fraternity across the street has just discovered Led Zeppelin. But these noises seem distant, removed from the focus at the center of the ceiling, constellations turning in the sphere of a distant and irrelevant Empyrean. Any cometary disturbance within his personal orbit must take a moment to be recognized. A knock upon the door, for instance.
"Come in," he says after a moment. He does not move.

## "Gonzago."

He sits abruptly upright. "Leonardo," he says. He stares blankly at the figure in the doorway for a moment, and then rubs his eyes. "Come in. Sit down." He gestures at the chair.

Leonardo enters; is seated, hands still tucked into the pockets of his coat. He looks at Gonzago, and then he looks around the room. He studies every item with meticulous attention. This takes perhaps thirty seconds. He looks again at Gonzago, then. "Interesting," he says.
"Well?" Gonzago asks. There is enthusiasm in his voice, energy in his gestures. Both come to him naturally, but here they ring false.
"It's functional, I suppose."
"Come on. What more could I require?"

Leonardo considers this. "Perhaps," he says carefully, "an exercise wheel and a water dish."
"I'll look into it."
"So what's happening?" Leonardo asks.

Brightly: "Just lying here thinking."
"That's all?"
"Sure."
"Ah," says Leonardo. He thinks.
"So what are you doing?" Gonzago asks.
"Cruising," Leonardo says absently. "Just cruising." He stands up. "Let's go out."
"I don't know," Gonzago says. "I have a lot to do."
"Tomorrow. Let's go."
"I don't know. I'm broke."
"I'll buy," Leonardo says. His manner, in another, might be stern.

Gonzago rubs his eyes again. "I don't know," he says again.
Leonardo takes the black leather jacket hanging on the back of the chair, and hands it to Gonzago. "Come on," he says. It is almost a command.

Gonzago stands, though it is not easy, and puts the jacket on. "What do you want to do?" he asks, as they walk out through the door.
"Get stupid," Leonardo says, "and talk some football."

## A Tavern, on the Frontier of Saxony

- or perhaps just a little bar off Thirteenth Street; a cellar, comprised of connected basement rooms, low-ceilinged, dimly lit, its atmosphere by this hour so dense with smoke as to be nearly opaque. A low
murmur of conversation provides the background for what ensues, broken only occasionally by shattering glass, a loud burst of laughter, or a demand to know one's Sign.

Upon this scene there enter Leonardo Garbonzo, an itinerant theoretician, and his boon companion Gonzago, a gypsy lad in search of love.

Advancing to an empty table at center stage, they are seated, and examine their surroundings.

## LEONARDO

Observe, the masses prowl these Catacombs, Gonzago; here they mouth their hecatombs
Of liquorous beverages ill-distillate
Placating deities inebriate.

## GONZAGO

As when that Titan's member encircléd Olympus; ...
[ - and the editor must hasten here to interrupt, before anyone finds out how the picture theory of the proposition got into a travelling salesman joke rendered in iambic pentameter. - Let's just cut to the chase:]

## GONZAGO

"...he'll show
The proposition's sense who can deduct her.
'Tis logic's end," he said. And then he fucked her.
Leonardo, bemused:

## LEONARDO

The sense of this perhaps eluded me

But certain 'twas heroic simile.

## GONZAGO

'Twas but the bridge. The calm before the storm.
'Tis intricate, but saves sonata form.

## LEONARDO

As when Jack Daniel first with compass traced The circle of fifths; its circumference paced His bottles sharp diminished as he sped Upon his rounds -

The Waitress enters:

## WAITRESS

- Have you guys orderéd?


## GONZAGO

A priestess of these pagan rites! Let the Fair goddess of intoxication -

## WAITRESS

Huh?

## LEONARDO

Martinis. Vodka. Two. Straight up and dry. The glasses chilled. Adorned with olives. Fly!

## The first round

[After a preliminary exchange of football metaphors, Gonzago commences a lament:]

## GONZAGO

'Tis summer; in this city season less
For pleasure, than for gnawing horniness.
Arouséd sun from heaven warmly leers
On the nubile creation; therefore steers
Attention that that which you haply had
Forgotten, when 'twas more securely clad.
[...at which point we lapse into an extended imitation of the Earl of Rochester ..... probably best to skip over this part as well...]
[He concludes:]

## GONZAGO

My eyes bloodshot by ventilated views And you ask me why, why I sing the blues.
[Aria: "The Blues down in my shorts." - The march of science has passed that one by as well, alas. - He concludes:]

## GONZAGO

But what's this lamentation mean
To you, Leonardo? your stuff is innocence
Your philosophic heart a stone immune
To Lust's erosion; you fancy's countenance
Unzitted by infatuation's pocks
No woman's ever taken off your rocks.
But with this Leonardo leaps to his feet and, smiting himself upon the forehead, exclaims:

## LEONARDO

Ah, no no no no no no no no no
No no no no no no no, Gónzago!

Gonzago is astounded:

## GONZAGO

What? You too?

## LEONARDO

Aye, Gonzago, I confess it. I burn with passion unrequited. (gnaws upon his sleeve)
Ah Rhonda...Rhonda...

## GONZAGO

Zounds!

## LEONARDO

Consumed by Love, nor any of my art Proof 'gainst this love -

## GONZAGO

- Now cracks a noble part.


## WAITRESS <br> (entering)

Huh?

They indicate their need for

## The second round

[Leonardo expatiates upon the theme of Unrequited Love. Gonzago summons his energies to attempt a précis:]

## GONZAGO

This, then, she is to you: that orb to which you look for warmth; that center toward which you gravitate; that axis on which you sit and rotate.

## LEONARDO

But what am I to her? An errant bit, omitted from the coredump of her love.

## GONZAGO

A data point thrown out when her passion's curve is graphed.
LEONARDO
A function that vanishes at her origin.

## GONZAGO

A set of measure zero, in her theory of the integral.

## LEONARDO

A negligible term in her equation of state.
GONZAGO

A vacuum fluctuation factored from her scattering matrix.

## LEONARDO

A photon strayed from the retina of her apprehension.

## GONZAGO

An impalpable scratch upon the record of her attentions.

## LEONARDO

A bungled trill in the background music of some station-break of her approbation.

## GONZAGO

A single ungraded by her passion's Bandstand.

## LEONARDO

A mutation unfavored by her natural selection.

## GONZAGO

A flea that troubles not the dog of her discretion.

## LEONARDO

A gnat floating in her Tequila sunrise.
GONZAGO

A crab crawling in the crotch of her discretion.

## LEONARDO

An item unlisted in her fancy's inventory.

## GONZAGO

A hamlet unremarked in the map of her world.

## LEONARDO

A radio operator who cannot raise her Rangoon.

## GONZAGO

A card dealt down to a folded hand in her game of stud.

## LEONARDO

A third-string shortstop in her Little League.
GONZAGO
A sweat-sock cast out by the fumigation of the locker room of her desires.

## LEONARDO

An hypothesis superfluous to her argument.

## GONZAGO

A trivial subplot omitted by her Cliff's Notes.

## LEONARDO

An unrewarded walk-on in the screenplay of her life.

## GONZAGO

The short she skipped in her Saturday afternoon matinee.

## LEONARDO

An unread letter to her editor.

## GONZAGO

A vowel missing from her bowl of Alpha-Bits.

## LEONARDO

Or, to summarize: to her mathematics an empty set; to her mechanics an ignorable coordinate; to her chemistry an inert gas; to her biology a dead variety; to her psychology a null stimulus; thus to her Nature an abhorréd vacuum. And: by her logic unaffirmed; by her metaphysics uncategorized; to her epistemology unknown; in her ontology, nothing.

The Waitress enters:

## WAITRESS

Huh?

They order again.

## The third round

[At this juncture they notice they are surrounded by tables at which are seated pairs of apparently eligible young women. Gonzago studies them through binoculars while proposing methods by which communication might be established. These include displaying the proof of the Pythagorean theorem on a blackboard to indicate the existence of intelligent life on this planet, tapping out love sonnets in Morse Code on the bongos, and pretending to be explorers recently returned from a Yeti hunt in the Himalayas. Several deliveries from Acme take place as they explore these and other possibilities, pranks, pratfalls, and plummetings into canyons ensue, and the room gradually empties as the objects of their attention perceive the wisdom of getting as far away from our heroes as possible. The scene concludes when the Waitress enters to take another order.]

## The fourth round

Baffled by the problem of initiating contact, the two discuss that fundamental work on contemporary interpersonal relationships, How To Pick Up Girls. They propose various possible Opening Lines:

## LEONARDO

Arms and the man I sing.

## GONZAGO

A gentle knight was pricking on the plaine.

## LEONARDO

A screaming comes across the sky.

## GONZAGO

Riverrun, past eves and adams

## LEONARDO

These lectures will cover all of physics.

## GONZAGO

We wish to suggest a structure for the salt of deoxyribose nucleic acid ... This structure has novel features which are of considerable biological interest.

## LEONARDO

Die Welt ist alles, was der Fall ist.
GONZAGO

Call me Ishmael.

## LEONARDO

It is a truth universally acknowledged that a single man in possession of a good fortune must be in want of a wife.

## GONZAGO

"And this also," said Marlowe suddenly, "has been one of the dark places of the earth."

## LEONARDO

It was about eleven o'clock in the morning, mid October, with the sun not shining and a look of hard wet rain in the clearness of the foothills.

## GONZAGO

It was a quiet winter's evening, and everyone was sitting around the living room flicking boogers into the fireplace.

## LEONARDO

Marke but this flea, and mark in this

## GONZAGO

How little that which thou deny'st me is.
LEONARDO
Now is the winter of our discontent -

GONZAGO
Made glorious summer, by this throbbing dork.

## LEONARDO

Let Observation, with extensive view -

> GONZAGO

Survey mankind, from China to Peru.

LEONARDO
Please pass the ketchup.
GONZAGO
Please pass the mustard.

## LEONARDO

Please pass the mayonnaise.

## GONZAGO

Please coat yourself with Wesson oil and flop around on this rubber sheet.

## LEONARDO

Live around here?

## GONZAGO

Is that a real poncho? I mean, is that a Sears poncho or a Mexican poncho?

## LEONARDO

Have you something for a headache?

## GONZAGO

Have you something for the Tijuana trots?

## LEONARDO

Have you something to take hair from the palms?

## GONZAGO

What would you prescribe for an egregious boner?

## LEONARDO

Come along and be my party doll.
GONZAGO

What's your name?

## LEONARDO

Who's your daddy?

## GONZAGO

Is he rich? rich like me?

## LEONARDO

Do you see yonder cloud that's almost in shape of a camel?
GONZAGO
By the mass, and 'tis like a camel indeed.

## LEONARDO

Methinks it is like a weazel.

## GONZAGO

It is backed like a weazel.

## LEONARDO

Or like a whale?
GONZAGO

Very like a whale?

## LEONARDO

You look sad.

## GONZAGO

You look lonely.

## LEONARDO

You look like a disciple of Schopenhauer.
GONZAGO

Are you Swedish? Your great blonde hair, is why I ask.

## LEONARDO

Are you German? Your great blonde hair, is why I ask.

## GONZAGO

Are you a native of Abyssinia? Your great blonde hair, is why I ask.

## LEONARDO

You have recently been in Afghanistan, I perceive. Your great blonde hair, is why I ask.

## GONZAGO

Haven't we met?

## LEONARDO

Didn't we meet at Monte Carlo the night I fucked your brains out?

## GONZAGO

Didn't you work at the topless doughnut shop at Colorado and Lake?

## LEONARDO

Didn't you hose me senseless in a former life?
GONZAGO

What's happening?

## LEONARDO

What's the smallest number that's the sum of two cubes in two different ways?

## GONZAGO

What's a four-letter word meaning "fornicate"?

## LEONARDO

Is my tie straight? I have an important engagement, and it is imperative I look my best.

## GONZAGO

Is my tongue hanging out? I have an important engagement, and it is imperative I look my best.

## LEONARDO

Am I exposing myself? Your great blonde hair, is why I ask.

## GONZAGO

What's your sign? Your great blonde hair, is why I ask.

## LEONARDO

What do you think of astrology?
GONZAGO

What do you think of the labors of Hercules?
LEONARDO
What do you think of the films of Annette Funicello?

## GONZAGO

What do you think of the myth of the vaginal orgasm?

## LEONARDO

What do you think of the apparent violation of CP invariance in the weak decays of the K meson?
GONZAGO

Live around here?

## LEONARDO

Tell me, where is fancy bred? Or in the heart? Or in the head?
GONZAGO

Live around here?
LEONARDO

Is this the way to the Post Office?
GONZAGO

Is this the way round the Horn?

## LEONARDO

Is this the way into your pants?

# GONZAGO 

Your great blond hair, is why I ask.

## LEONARDO

Live around here?

## GONZAGO

Fuck for a Coke?
The Waitress enters:

## WAITRESS

Huh?

## LEONARDO

(gestures at the empty glasses)
Another.

## Interlude

Leonardo in the restroom. Entering, he stumbles over three persons of questionable age and sex sprawled in a heap on the floor. Skirting this pile of humanity, and narrowly escaping loss of skin on the prophylactic dispenser which

Dependent on a single screw
Now dangles from the wall, askew
he perceives that the urinals are stuffed with flotsam, and proceeds to inspect the stalls.

The first is occupied by a bespectacled gorilla reading The Journal of Philosophical Logic. They nod in acknowledgement, and he proceeds to the next.

The second is filled with a partially inflated rubber raft. It contains bottled water, some candy wrappers, a well-worn copy of How to Survive on Land and Sea, and four elves playing strip poker with a party doll. The floor is covered by a puddle of yellow dye. He wishes them good luck and moves on to the next.

The third is unoccupied. A small stoppered vial floats in the toilet, with a slip of paper rolled up within. "A message in a bottle!" he exclaims. But pauses instead to read the graffiti on the walls:

What no one sees, that no one knows
Extend a finger; pick your nose.
Let others ponder riddling Life, and Art
For me the unbought lay, the silent fart
The seeping unknown!
Before my cock had crowed twice, invariably she had denied me three times.

The Alpha Taus will all attest
That Brenda's teeth fold back the best.
(1-618-0339, evenings after Magic Hour)

For a good time read Aristotle's Poetics, PQ 1039.
The pen is mightier than the dork.
Ontology recapitulates philology.
Odd - is it not? - that some think we should live as Nature intended. Nature intended us to breed like rabbits, to die like
flies.
It was in the tenth circle of Hell that Dante found the traitors to themselves.

Banality, thy name is Fresno.
"It is indeed," he mutters, removing himself. He pisses in the sink, and makes an exit.

## The last round

"The Foreign Legion?" Leonardo asks.
Gonzago drains his glass. "Why not?"
"But mark our situation," he continues. "We stand as if abandoned in a labyrinth; despondent and alone, possessed by vertiginous desire, confronting a maze of alternatives. Down each false trail lies failure, frustration, electric shock; the thread lies broken in our hands, that will lead to felicity, fulfillment, that bit of cheese at the end of the rainbow. - Ah! to lie forgotten somewhere, fallen in a vain fight for a lost cause; what more fitting end, for the twentieth-century man?"

They drink to that, and to the conclusions of a hundred other speeches. Their wits are keen, their thirst is unquenchable, and the likelihood of either one of them making a positive impression on any of the eligible young women who surround them is nil. The evening wanes as they drain one glass upon another, the clock advances past the witching hour to the point of no return, and everyone else in the bar leaves to go home and get laid.

## Exeunt

The clock strikes two at last. They stagger from the premises into the street. The lights have gone out. They stand for a moment bewildered, gazing at the stars, confounded by the infinity of space.

Leonardo, staring dumbfounded at the heavens, recites the nursery rhyme:

```
Star light
Star bright
First star to meet my sight
Would that I may
Would that I might
Hump Rhonda's brains out, Friday night.
```

This breaks the spell. - They lurch off to their separate destinies, laughing their defiance of the gods.

## (lii)

Dreadfully wasted, I can manage no more than some desultory reading in the telephone directory.

Wittgenstein said there'd be days like this.

In school everyone around me had money, and I had none. I borrowed from my friends constantly and, despite the occasional pang pro forma of bad conscience, barely thought about it.

Now it is the opposite: I am employed and have disposable income, and everyone around me is broke. So they all borrow from me, and I pay no attention to that either.

What a relief it is to discover that I'm not really an asshole. I just don't give a shit about money.


Sweet William finds me as he always finds me, backed against a wall with a Camel in my hand, staring, abstracted, at the crowd basking in the sun: Barbie and Ken, going to college. He sits beside me without a word, Our minds wander a few moments in parallel.

He begins, then.
"Last night was pretty strange."
A sharp direct look beneath lowered eyebrows. He inhales asthmatically on his Pall Mall.
"I was taking shots of Tequila at the Good Earth when this friend of mine I haven't seen for a while comes in, Fast Eddie, you may remember him, he's an artist, the one who did the sculpture on Broadway? it looks like a jungle gym, everybody hates it, anyway, so I ask him how's it going, and he smiles, you know, it was weird, like he couldn't talk. and he's making these gestures, you know, like some kind of sign language, which I can't figure out, but I follow him into the john anyway and he has these two joints of Columbian, you know, so we do these and this liberates my sensibility, so to speak, and then we were out in the bar taking some more shots and this guy David comes in, from Aspen, he's a dealer, and he's talking to us about this journal he's going to start in conjunction with the Naropa Institute, right, about which I meant to ask you, and also about this concept I find in James about the primitive grounds of experience, but anyway so I'm talking to David and we decide to go to this party, but first we have to stop off and make a drop, so we go to see this guy Wolfgang who escaped from East Germany, you know, but he sleeps with his motorcycle, I mean it's really strange, but he's not there anyway but his roommate is, this guy Jerry who drinks Coors for breakfast, I'm
not kidding, I've seen him, he puts it on his cornflakes, and then this lady comes in who is really strange and it's weird because as soon as she walks in the door she like jams her hand down my pants, you know, and she looks at me, you know, and we go for a ride in her car, which is a Mercedes, and we do some lines at the stoplight and all the time she's giving me this handjob, and we make it to the party which it turns out is in Ward, twenty miles up the canyon into this devious altitude, right, and there is this guy Weird Billy about whom I may have told you, anyway we get there and there's a rubber sheet on the floor and everybody is covered with Mazola lying around on it and we're doing lines of mescaline and crystal meth and there's a roast pig, no shit, on the table, with an apple in its mouth, and I'm eating and grease is running down my chin and I'm covered with grease and Mazola and my brain is fried and suddenly I have this flash and I'm a caveman, you know, a fucking Neanderthal, and I jump out the window stark naked and start howling at the moon, after which I forget what happens for a while but then I'm talking to this lady whom I have never seen before and she is asking me all these weird questions, you know, and I can't figure out what she is talking about except she escaped from this CIA detention camp somewhere and she wants me to run these plans for an antimissile laser to Uruguay, which is still difficult for me to follow because I am still as you would say laboring in the Pleistocene, but anyway we get out of there and go down the canyon, eighty miles an hour in this old Chevy she's driving and I am scared shitless but we get to her apartment and I fuck her three or four times and I start telling her about Cambridge, you know, it was weird, when I was at Harvard, and I am telling her about my tutor and the sherry, you know, he would pour me a glass of sherry when I went to see him every week, and we'd talk about what I was reading, you know, and he'd give me a list of things to read for the next time I'd see him, and he was just this neat old guy, you know, and he was the one who got me into Pragmatism in fact, and I still call him
up every once in a while, and he gave me these books which are pretty valuable, an edition of Peirce and like that, and anyway I am thinking about this and we're drinking Bacardi and then I don't remember anything, you know, it was weird, like I blacked out, which has never happened to me before, and when I wake up this morning I am home in bed and the place smells and the raccoons got in through the window again and got into the garbage, fifteen bags of garbage all over the kitchen and the door's hanging open and I have to go and see my dissertation committee today and I can't even remember where this lady lives and it's strange, you know?"

I laugh briefly. I light another cigarette.
The sharp direct look beneath lowered eyebrows. He inhales asthmatically on his Pall Mall. His eyes shift.

I laugh again.

## "But it's strange," he says.

"It's like the time we were hitching back from the Cape after Spring break and got a ride from this old guy, I keep thinking I am going to run into him again, he was an artist and he lived there along the coast and painted, you know, and he took us home with him and gave us dinner and we talked to him about what we were doing in school, you know. It was me and this other guy I must have told you about, we'd been doing crystal meth all through finals and we'd gone off to the beach to recover afterwards, we'd both been up for a week and all we did was sleep and lie in the sun, this guy was really a genius, he was going to be a molecular biologist. He was my best friend."

He pauses. The sharp direct look. He inhales again upon his Pall Mall.
"He was my best friend. He cut his throat, not long after that. With a razor. From ear to ear. He bled to death. In the dormitory, in the bathroom, on the shower floor. I walked in and found him there. I screamed for help. There was nothing I could do. I watched his blood run down the shower drain, and there was nothing I could do."

So innocent they seem, Barbie and Ken. They sun themselves, like seals upon the rocks at mating season. The war is over now. What should they care.

It doesn't matter whether the tale is true or not. It may as well be. I turn away, so that he will not see the tears that start from the corners of my eyes.

The consciousness seems a point. This is not the self, which is complex and extended.

Like space and dual space. Mappings onto a field. (What field? well, a sort of minimal reference object.)

Meaning what? the flow of time?
Duration, then.

At once in one place, and moving. Never at rest. Always moving at the speed of thought.

Like the trajectory of the Dirac electron. A function continuous but nowhere differentiable.

The Zitterbewegung of the consciousness.

The equations of motion of a thought.
(lvi)

The living organism, tacking its way upwind against entropy.

Saturday morning. Half asleep, half within a dream. The cavernous complexity of the conscious mind. Topology of the mental space, connection and cross-connection. - Homology groups? how could they possibly be finitely generated. - drifting - Pellucidar, the world within the Earth. Imagining yourself a surveyor, dissecting it into simplices. Triangulating, like Archimedes, fitting polygons to some enormous circle.

Rolling over, I wonder if she likes it from behind.
(lviii)

It was three o'clock when the telephone rang.
"Hello," I said.
"Hello," she said. "It's me," she said.
"Ah," I said.
"I got your letter," she said.
"Oh," I said.
"Were you asleep?"
"It wasn't terminal," I said. "Wait a minute. I'll have to get some cigarettes."
"All right," she said. "I thought you quit," she said when I got back.
"That was last year. I changed my mind. I decided to give up giving it up."
"Oh." A pause. She inhaled. Strange how you could hear someone inhaling on a cigarette a thousand miles away. "I was going to call you anyway," she said.
"Oh."
"I wanted to ask you about Strings."
"I don't know much about it."
"Yeah, but I don't get it. How does it work?"
The cigarette and I considered it. "It's a development out of the Veneziano model," I said. "They have this very nice guess about the form of the strong interaction scattering amplitudes, at least to first order, and it gives you some very nice properties for the mass spectrum of the hadrons, an exponential increase in the number of states as the energy goes up, for instance, and it all turns out to be the same spectrum you get out of a relativistic rubber band."

She laughed. "Did you make that up?" she asked. "About the rubber band?"
"No, I think Feynman did. Or Gell-Mann, maybe. Murray has a way
with words. But the idea's Nambu's. Him and some other people."
She laughed again. "But I don't get it," she said. "How is it supposed to work?"
"I don't know. I guess you imagine the quarks are tied together on the ends of the strings, or something. It seems an odd sort of thing to ascribe physical reality to, though."

> "Yeah," she said.
"I kind of like it, though. It suggests that quarks only see each other in one dimension. I like that."
"Yeah," she said. "I suppose. But I don't get it about the twenty-six dimensional space."
"Yeah," I said. "Wow." I looked at the cigarette. "It doesn't sound topological, when you do that."
"Why doesn't it sound topological?"
"Because you can embed any graph in three dimensions."
"Oh," she said. A pause. "Maybe you can't embed it the right way, though."

I liked that. "Yeah," I said.
I thought about it for a minute.
"Anyway," she said.
"Yeah," I said. "So what's new?"
She sighed.
I laughed. "Never mind," I said. A pause. "How's Bernie?" I suggested.
"Weird," she said. "She's really weird."

I laughed. "Good for her. What is it this time?"
"She has a boyfriend."
"Really?"
"Yeah, but it's weird, she won't tell anybody about it. She sneaks out to see him, she's really secretive about it."

I laughed. "I don't blame her. I'd probably do the same."
"Yeah," she said. She laughed. "You probably would."
"How's Susie?"
"She has a boyfriend."
"Ah."
"He's all right, this time. I think she's going to marry him."
"Did she ... ah ... ." A pause. The felicitous phrasing.

She laughed. "Yes. A long story. It was funny."
"Ah."
"So how's it going with you? What's Gonzago doing?"
"He joined the Foreign Legion."
"What?"
"As close as he could come. He got a job teaching, in the middle of nowhere in New Mexico."
"Oh. How's Stefano?"
"Well enough, I expect."
I could hear her making the face. "Is he still married?"
"Yes."

A theatrical sigh. "I just don't understand."
I laughed.
"So what are you doing?"
"I have the job."
"Still?"
"Yes."
"Don't you get tired of that?
"Yes."
"I think you should travel."
"On what? Anyway, it's a Spiritual Exercise."
"Oh," she said. "Yeah."
"I'm trying to Mellow Out," I said.
"Oh," she said. She laughed. "Wait," she said. "I don't understand. I thought you had determined the guiding principle of life was, Don't Lay Your Trip On Someone Else."
"I've analyzed the matter further," I said. "It's a corollary, you see. If you're Mellow you won't Lay Your Trip On Someone Else."
"Ah," she said.
"Eventually I'm supposed to move up the canyon with my old lady named Sunshine," I said. "But I'm not that Mellow yet."
"Where do you get the old lady?" she asked.
"That's a problem," I admitted. "But I'm working on it."
She laughed. "So are you Hustling?"
"Not really. I gave up on the bars. It always made me feel like an
anthropologist, you know, studying mating rituals."
"Yeah," she said. She laughed again. "So what are you doing? Pursuing female janitors?"
"No. All I have going at the moment is this weird romance with a female graduate student."

She laughed. "I thought you'd learned."
"Yeah, but I figured I ought to develop an infatuation, you know, however arbitrary, so I picked one out, you know, more or less at random. But I had to make do with the materials at hand. You know. It's another Exercise."
"Does she have big boobs?"
"Ah." A silent grin. "Yes."

A sigh. "So have you taken her out?"

I laughed. "No. She won't even talk to me. I have the feeling she thinks janitors are subhuman, or something."
"So what do you do?"
"Oh." I lit another cigarette. "I smile at her. Every once in a while she smiles back."
"Oh."
"That's my sex life now."
"It's better than mine, then."

We both laughed.
"I mean, she's more of a misanthrope than I am. And she's arrogant, in a spaced-out sort of way. It's weird. I have the feeling about her, that she gets up in the morning and looks at herself in the mirror and says to herself, 'I have the Best Boobs in the Department.'"
"Oh," she said. "Yeah."

I laughed. "I wouldn't like her if she didn't have a funny nose."
"Oh," she said. She considered it. "I think you should learn Body Language," she said.
"Yeah, but I think it all comes down to a bulge in the right part of the pants," I said.
"Oh."
"No, the wallet," I said.
"Oh," she said. "Yeah."
"I can't believe Stefano is still married," she said.

I laughed. "Well."
"Is Marriage Mellow?" she wondered.
"I should think it would involve Laying Your Trip On Someone Else,"

I said. "But I'm not sure."
"Perhaps," she said. She sighed. "I just don't understand."
I laughed.
"So why didn't you quit smoking?" she asked.

I inhaled, and considered it. "I don't know," I said. "It was strange. I went on all last year without it, and then I had to look for a job. It was fall, you know, and chilly, and one day I was walking through the campus on my way to make an application, and I'd bought this pack of Camels, I don't know why, for company, I guess, and I had it in my pocket, I was wearing my Navy pea-coat, you know. And I had my hands in my pockets, and I could feel the pack in there, and then I had this epiphany, it was like I realized how alone I was. It was like it was the dead of winter all of a sudden, and I was walking through the campus by myself and I realized that pack of Camels was the only friend I had."
"So you lit one," she suggested.
"No, I didn't get around to that for another month. They were really stale by then."

She laughed. "I'll bet."
"But it was like you said once, that pack of Camels was an Ally."
"Oh," she said. "Yeah."
"It sucked," I said, "looking for a job. I hate having to deal with those people."
"Oh," she said, "I have it figured out. They're all Aliens."
"Aliens?"
"Yeah, none of them are real people. Real people are an oppressed minority, there're hardly any of us left, you know. The rest of them are Aliens. You can tell."
"Oh," I said.
"No, really, you can, can't you? When you look at them you can tell."
I thought about it. "Yeah," I said.
As usual, she was right.
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## Intermezzo

It is the Children's Hour.
Various of the Players are seated on the floor - nightshirts, suckers, beribboned pigtails.....

Stefano, seated above them on a chair with his guitar, regards them with a benign smile.

They clamor for his attention. - "Tell us a story, Uncle Stefano." "Please Uncle Stefano." - "Yes, please." - "Tell us the one about Captain Bill." - "Tell us the one about the Polack and the definition
of truth in formal languages." - "Tell us the one about The Little Dildo That Could."

Uncle Stefano tells stories to the children. He tells the one about the ravenhaired princess in the high tower, the one about the tailor who slew seven with one blow, the one about the war in Asia that had no beginning and no end.

He tells the one about Theseus, lost in the labyrinth, hellhound on his trail. Seeking the egress, he asks directions from The Girl With Boobs As Big As Saucers, The Girl With Boobs As Big As Melons, and The Girl With Boobs As Big As Beanbag Chairs - who cannot get up, and addresses him from a position face down upon the floor.

He tells many others, and then takes questions from his audience: "Uncle Stefano, why did Rumpleforeskin imprison the girl with the golden locks?" - "He needed her to spin rare earths into catalytic compounds." - "Uncle Stefano, where does Hilbert space come from?" - "The lattice of experimental propositions defines a projective geometry upon which one can employ the Von Staudt construction to construct a natural system of coordinates." - "Uncle Stefano, why do fools fall in love?" - "Their days are numbered and their doom is sealed."

## (lx)

## Der Bozo der westlichen Welt

Phil wanders his dukedom incognito. He wears lederhosen and a Mickey Mouse teeshirt which is too short to cover his gut.

He encounters giants, enchanters, fair maidens in distress, nobles languishing in durance vile. He might be of more use to them if he didn't keep stepping on his dick.

Everywhere he goes he seeks a mysterious female who fled his cheerleading auditions without giving her name. He carries the glass brassiere she left behind her, which many try on but none can fit.

In a village on the boundary of his realm, the peasants greet him with songs and flowers. Kissing a girl, he is turned into a frog.

Two quarks on the end of a rubber band make a meson. But you need three to make a baryon. Why not at the corners of a triangular sheet? Consider the polyhedra you can stitch together from triangles, then. - Well, we know that story. - The hadrons are the compact connected manifolds. - Amplitudes for tearing.
"The fart slipped from his nerveless rectum."

## (lxiii)

The garret of Leonardo Garbonzo, an unheated attic in the Latin Quarter. Here by the light of a guttering candle he labors over the libretto of his space opera, La Travestia....

Garbonzo had passed his novitiate in a Tibetan monastery which, rather like the Italian Swiss Colony, contrived somehow to be in California. His master there was Ricardo Marconi, a mysterious sage from Pittsburgh.

They spent many happy hours drinking caffeinated sludge from a Mister Coffee machine, admiring the sage's secretary (Miss Spinozist 1971) as she typed the latest pages of his treatise (six volumes, in

German) on the aesthetic correlate of the ontological argument, and debating the nature of reality. - "All is as ever was," the sage opined. - "Shit happens," Garbonzo agreed.

But few philosophers could be found among those palm trees, and the atmosphere, like that of Venus, consisted mainly of superheated hydrocarbons. Garbonzo left in search of oxygen, vowing to Mellow Out. The sage himself abandoned his chair and left the confines of the monastery to wander the beach communities of the planet with lamp and staff, looking for a good deal on a new or used Ford, Chevy, or Plymouth. The two maintained an erratic correspondence...
"My intellectual life goes on," Garbonzo wrote, "though it all seems like Pooh and Piglet, chasing the Woozle - walking in circles, following my own tracks in the snow

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Contra Bohm: a hidden-variable interpretation of quantum mechanics will always be possible, just as you can always save the phenomena in the Ptolemaic system by adding epicycles. ${ }^{33}$ The real question is whether adding epicycles leads anywhere, whether it advances the creative process. And the answer to that is obviously no.

Anything that modifies and improves upon quantum mechanics would have to be even more elegant, and therefore only weirder. - As Von Neumann himself realized: most of what he did in the Thirties was aimed at trying to generalize the formalism to find a deeper structure: the work with Jordan and Wigner, ${ }^{34}$ the work with Birkhoff, ${ }^{35}$ the work on continuous geometry ${ }^{36}$ and operator algebras ${ }^{37}$.....

[^24]Anything that modifies quantum mechanics will have to be even stranger. Or else it would be a disappointment.

Nietzsche's version of the principle of sufficient reason: "it is only as an aesthetic phenomenon that existence and the world are eternally justified-"

But more apropos is Hunter Thompson: when the going gets weird, the weird turn pro.

Fancying himself as a recurring character in a Heideggerian soap opera, something like "Yearning For Transcendence" -
(lxvi)
"The existence of the horrible in every atom of the air." ${ }^{38}$
As if it it had been this that permeated the atmosphere of Being, the internal, the ding-an-sich, the World as Malignant Will (not Representation) - some nameless fear that lay at the heart of the subjective world.

[^25]Thus diseases burst forth from within individuals, and everyone contains a death. - Everything is a shell. Appearance is a mask which conceals the fundamental negation. - Phenomenon encloses noumenon as the brackets enclose the empty set.

Brigge himself is rootless and insubstantial. - He reminisces: ghosts and doppelgängers. - The idea that spirits wander around possessing persons: the spirit of spastic twitching that inhabits the man he follows, for instance, and moves around within his body.

The past is one of them. Count Brahe is possessed by his childhood.
But the spirit of negation possesses all of them.
Still this isn't it exactly. What it is, is that you realize you are holding yourself up by your own bootstraps; that nothing supports you save your will to believe there is some foundation; that beneath you yawns the Void, and if you let go of yourself you will fall. - It is something like the moment when Munchausen has to admit he's descending a rope that isn't attached to anything, and everyone hanging from it begins to fall. - Or that priceless Wile E. Coyote double-take in the moment just after he's run off the edge of the cliff and just before gravity switches back on and he plummets downward out of shot.

I recall stumbling out of the University bookstore in metaphysical terror, crossing the street to the parking lot, trying to get back to the car to go home and - I know not what - huddle under the bed in the fetal position, perhaps. - At a distance I saw a girl crossing the street. She wore a green sweater, the color of pine needles. There was something about her, her braless carriage, the way she bounced off the balls of her feet, something that arrested my descent into the bottomless pit. - God loved the world, I thought, to put a girl like that in it.

This thought got me through that day, which was a bad one; and many like it afterward.
(lxvii)

Bohr on complementarity: the Hegelian version, but really the natural viewpoint is just that many things can be true - or sort of - at once. - The Treatise on the Steppenwolf on "two souls, alas, dwell within my breast!" - It does sound like the Yancos again.
(lxviii)

In boc signo weenies
A clearing in the wilderness. Leonardo and Fogelberg toast hot dogs over an open fire and debate the relationship of Art to Life.
"Adequatio rei et intellectus," says Leonardo.
"Coitum plenum et optabilem," says Fogelberg.
(lxix)

$$
\begin{aligned}
& \text {-imain my mirth! }
\end{aligned}
$$

$$
\begin{aligned}
& \text { A l.y:on ot silta... }
\end{aligned}
$$

Cantor's ontological proof: at any rate the empty set exists. - And after that all you need do is conjure up an infinite supply of brackets. - Something from nothing, pulled up by our own bootstraps. Sets exists because we think about them. - And to think we made fun of the theologians -

> (lxxi)

The idea that there can be an observation-language uncorrupted by theoretical terms is much the same as the idea that art is purely descriptive and representational, and fails for the same reason: you can hold the mirror up to Nature, perhaps, but nothing can be seen that way.

## (lxxii)

## The barbaric court of Maximilian, Count Dog

A vasty hall, somewhere in the wilds of the Bohemian Alps. Amid smoke and confusion lords, ladies, and mongrel dogs (none easily distinguished one from the other) cavort among long rude wooden tables heaped with burnt dead flesh and tankards awash with mead. Fires roar on every side, illuminating by their flickering light a dirt floor heaped here and there with assorted courtiers, presumably those lacking stamina.

There is always some occasion for celebration, but the one currently in progress commemorates the twenty-fifth anniversary of the Count's first utterance. Papers are being presented to commemorate the occasion, and will subsequently be published in the traditional Festschrift volume. Submissions include:

Cohomology of a Nonabelian Gauge

Sax, Drugs, and Rock and Roll
It Came From Bedlam Kennel
Barth and AfterBarth, Dog and Madog
Might Gin Distill The Philosopher's Stone?
My Most Unforgettable Character
Death of a Salesperson
Elvis Meets the Daughter of the Wolfman on a Beach Blanket Finden, Ficken, Vergessen: the theme of the Quest, in the work of M. D. Hoye
Übermensch Meets the Daughter of Wittgenstein
Christmas in Las Vegas
Gonzago Furioso
The Throbbing Pen: Myth and Millstone in The Carpetbaggers Either Or What?
A Note on Newcomb's Paradox
Prometheus in Bondage
The Stones of Venice
The Brothers Garbonzo....
As we enter on this scene of wanton debauchery we find the Count attempting to explain to his lead singer the difference between a trumpet and an orchestra. ${ }^{39}$

He stands before a map and gestures with a pointer. "Here is my hand...and here is the continent of Africa. Do you follow me so far?"
"Huh?" she responds.
Catrina enters. "Pardon me," she asks. "Is this the way to the Post Office?"

[^26]"Didn't we meet at the Chateau d'If in the winter of '66?" the Count responds. "You wore velvet and leopardskin, and whistled the Kreutzer Sonata as you crawled out of a cake."
"I knew you were a Pisces," she says.
Now as always, the Count is a man of action. - "Take a Bildungsroman!" he exclaims.

She is seated, produces pen and notebook, and strikes an attentive pose.

He paces back and forth, pausing to gesticulate. She scribbles furiously as he dictates:

Also Sprach Dog.
Chapter One. Childhood and Youth.

Atop windswept Olympus, she turned to meet my brooding eyes with a questioning gaze. "Was that all I meant to you then? Wealth, pleasure, companionship, a mate for your tormented artist's soul?" - "Yes," I said, a bitter smile twisting my cruel mouth. "This and no more." And then I fucked her.

Chapter Two. Immanuel Kant as I knew him.
As I looked out upon this barren plain where no man before me had stood, I felt her hand creep down my pants...
(Illustrations from the Count's scrapbook: at the wheel of his Bugatti roadster; in his Jacuzzi with a bevy of Playmates; posing with assorted worthies as they all hold one another's knees...)

## Meanwhile...

The Master of Ceremonies, Johnny Cocktail, announces ("Count Dog's guests tonight include...") the wandering troubadours Stefano and Leonardo.

The two make their entrance. Stefano, in the person of the blind bard, has a filthy bandana wrapped about his eyes, and carries a tin cup, a harmonica, and a stick with which he whacks erratically at his surroundings. Leonardo carries a banjo, wears a bag over his head, and leads Stefano by a leash attached to a collar around his neck. They fumble their way to what might be regarded as center stage, and strike attitudes of performance.

A mixture of jeers and applause. - A demented banjo accompaniment commences. - Stefano recites:

Dildo I sing, the organ-artifact
Prodigious; perpetrating bestial act
On maidens sacrificed its will to please
'Mid antlike hordes of scatt'ring Japanese.
A throbbing tower of thirst insatiate
Unslaked by any art fellatiate
An engine pseudo-phallic run amok
In lewd immoderation for a fuck.
A swollen mock-tumescence profligate
Indifferent to the casual Pricks of Fate.
(interpolates demented harmonica bridge)
What willed this phallic marvel should transpire?
Attend us, Muse, as questing we enquire.
Explain whose tongue was destined to entreat
The weight of this colossal length of meat
What mortal ruminant could chew this cud?
What mortal's hand could whack this awful pud?
What mortal female find felicity

Embracing this obscene plasticity?
Ah, sing then, Muse; or whistle if you'll so do
This tale from Tom Swift, of his Giant Dildo.

As leadballed Testicles in wading boots
The lust of the Augean prostitutes
In but one night did wholly dissipate
And entered afire, but left enervate
So Captain Bill...

The strange sense of constriction in cosmology - the exact opposite of Pascal, a kind of cosmic claustrophobia. As if the universe were not big enough.

Cosmic; all-too-cosmic. - Or rather, not cosmic enough.
(lxxiv)

I had been holed amidships, and had begun to detect a list to port, but I thought my judgment unimpaired.
"Restrain yourself, Gonzago," I advised. "She's probably seventeen years old, with the mental endowment of a hamster."

> (lxxv)

In this room shall I rest. Disconsolate,
Torpedo'd by the Blues, and drowned in scenes
Of drink and dissipation, still I've means
'Fore which my woes must fast capitulate.
Not yet the noose. Nor will I stoop to sate
This thwarted passion 'mid them Cajun queens

Nor either leave my hose zipped in my jeans.
Nay, let me stand, and loudly urinate.
I thought I had a woman I could trust.
I thought I had a brand new Chevrolet.
But she's run off, and now my chrome is rust.
I'll let that pass. I'll piss my blues away.
With its last drops my pen concludes this sonnet:
That woman's been my ruin; but, piss on it.

## The Nature of Love

It is a joke, of course, one played upon you by Father Darwin and Mother Nature: you get it, and you don't; it is a delusion, and it is not; your behavior is rational, though it is quite the opposite; it is impossible, but it is necessary; - and so on, and so on, for four-andtwenty cantos and that many thousand lines.

But it is pointless to regret anything that happens, or regard it with bitterness or embarrassment. You must follow the example of your mentor Fearless Fosdick, thrown from the window of a skyscraper to fall fifty stories into a garbage can. He pulls himself from the trash, brushing off banana peels and cigarette butts, and says, with obvious relief, "Fortunately, I landed on my head."

## (lxxvii)

The Athenian dramatists wrote tetralogies, three tragedies and a satyrpiece. I employ a similar dialectic, right down to the lowest level three steps forward, one fart joke back.

Or so I like to tell myself. Really it's more like fifty-fifty, and any progress is a random walk.

## (lxxviii)

## Conduct of the War

- Another game of chess. On one side Phil and his advisers, playing white; on the other side, playing black, some grotesque creature with fangs - no doubt in a Viking helmet - posed like a Bond villain, coolly smoking a cigarette in a holder with one leg crossed over the other and a drink in his hand. - A Messenger enters, panting, and hands the envelope to this creature, who calmly opens it and advances a pawn, blowing smoke into Phil's face - We perceive that Phil has three pawns and a knight left, ringed around his king - the creature has six rooks, five queens, and half-a-dozen bishops and knights arrayed around their position -
- Phil and his staff in the Situation Room, looking up at a Monopoly board which covers the wall behind them. Ensigns and Lieutenants with long poles push the counters around. Officers gathered around smaller tables roll dice and argue strategy.

A Messenger enters. - "Sire, the Prince has put hotels on Boardwalk and Park Place!"

Phil waves airily - "Mortgage the railroads and put another house on Baltic."

Frantic activity on the Board.
A very small sheaf of Monopoly money, all ones and fives, in front of Phil - he hands a couple of bills to the Messenger, pats him on the shoulder, says "Keep the change." Exit Messenger.

- Interlude. Leonardo, in leather flying helmet and flight jacket, plays piano in a whorehouse. - He plays "Big Boobs Boogie", "You Stepped On The Smile On My Face", and "You Don't Know How To Boogie, Do You, Buster Brown?" ${ }^{40}$
- A football game. Phil paces back and forth along the sideline, consulting his clipboard.

Loud animalian grunts from the field, mingled with cries of fear and terror. Players and body parts fly in from out of shot, many with tentacles and/or fangs still attached to them. Substitutes on the bench wet their pants in terror.

The cheerleaders, undaunted, try to excite the crowd:
Piles!
Psoriasis!
Gout!
Septicemia!
Let's swoon and malinger for the Duke of Bohemia!
with gymnastic accompaniment.
A glimpse of the scoreboard, which indicates 117-0. - "They've missed two extra points," says Phil. "That's going to cost them later."

The pep band strikes up "Woolly Bully".

[^27]It was only midnight when she called this time, and I wasn't asleep. I was doing some research, with a bottle of bourbon and an old Bob Dylan record.
"What's the matter?" she asked.
"Huh?"
"You sound funny."
"It's nothing that fourteen hours of sleep and a few hundred thousand dollars couldn't cure," I assured her.
"Oh," she said.
"I'm sure my Fairy Godmother will take care of it in the morning. So what's happening?"
"Oh," she said. "I got a postdoc."
"Really?" I thought about it. "Where?"
"Oh, you know." She laughed. "In Pasadena."
"Oh," I said. "Great." I thought about it some more. "Wait a minute," I said. "I have to get some ice."
"I meant to ask you," she said when I got back," about General Relativity."
"I don't know much about it."
"Yeah," she said, "but I don't understand about black holes."
"Neither do I," I said. "What don't you understand?"
"If you fall into one, you can't get out, right?"
"Supposedly."
"But in quantum mechanics you can tunnel out of a potential well."
"Right," I said. I laughed. "You just wrote Hawking's latest paper. Tell me the rest."
"Really?" She was excited. "So it can happen then?"
"Apparently. You can't come out in one piece, though. Information can't escape. You come out as blackbody radiation."
"Really?"
"At least in the semiclassical theory."
She liked this. "But why not in one piece?" she asked.
"You shouldn't be able to tell anybody on the outside what's going on inside."
"Why not?"
"Entropy, apparently. It's irreversible, when you fall into the hole."
"I don't like that."

I shrugged, though she couldn't hear it. "It's not the whole story yet. Maybe it'll be different, in the fully quantized theory."
"Oh," she said.
"I'm still not sure that I believe it," I said.
"Why not?"
"I was figuring anything that was such good science fiction couldn't be good physics. I'm not so sure now."
"Oh," she said. She paused. "I'm still not sure," she said. "About the tunnelling. Where do you come out?"
"Homogeneized," I said. "On the surface of the event horizon."
"But what happens on the inside?" she asked.
"You don't look at it from the inside," I said. "You look at it from the outside."
"But what happens on the inside?"
"I don't know. Nobody comes back to talk about it."
"What if you fell in, and there was another hole inside and you fell into that? Would you be on the outside then?"
"I don't know," I said. "I don't know if that's possible."
"I want to know," she said.
"Everybody wants to know," I said. "Everything."
"Don't you want to know?"
"Sure," I said. "But one thing at a time."
"So what do you want to know now?"
"That's a tough one," I said. I finished the drink, and poured another one. "A lot of things, I guess."
"Oh," she said.
"Yeah," I said.
"So are you still working?" she asked.
"Yes."
"Aren't you getting tired of that?"
"Yes."

She laughed. "I thought you were hustling a graduate student."
"I was."
"So how did that come out?"

I laughed. "Ignominious failure."
She laughed. She sounded relieved.
"It's easy for you to laugh," I said.
"You're young," she said. "You'll get over it."
"Didn't they say that about the Austro-Hungarian empire?"
"Perhaps," she admitted.
(lxxx)

## Charlie's Topless Taco

A kiddies' Kool-Aid stand, or the moral equivalent thereof, with a paper banner above it proclaiming the nature of the business. Catrina and Greta stand behind the counter, shirtless but sporting ludicrously fake tits. They sing a duet lamenting this new nadir in their fortunes.

Charlie himself, an enigmatic personage in a gorilla suit, reclines in a lawn chair to one side, reading Kant....

Phil arrives, carrying the glass brassiere. Unsurprisingly, neither Greta nor Catrina fit.

## Maxims and reflections

One should always do that which seems more difficult at the outset.

This is less physical than psychological necessity. When the worst has been done, the rest seems to go more quickly, momentum is automatic. And when things seem to be going more quickly, they are going more quickly.

This holds for small tasks as well as large ones. If at some point you must walk down to the end of the hall, you should get it over with at the start.

Like any rules, the rules for harmonization, for instance, the exceptions almost seem to define the rule. There is a certain rhythm to be maintained in its acceptance and rejection. It is an aesthetic matter.

Strong bold movements at the outset; gradually they shorten and become more rapid, collecting themselves about a center; which is the Closet; like the spinning skater with arms outstretched, drawing them in; the conservation of angular momentum. - The morning routine recapitulates the formation of the solar system.

But there is no need to move quickly. Save perhaps when you are attempting a task for the first time, trying to get it wired. Otherwise you needn't consciously rush. - If you do, you do so only once. After that it is automatically faster.

To some extent it is a mechanical procedure, programmed, blocked out in a flowchart; for each box you call the appropriate routine.

It helps periodically to reorganize your approach. To do things in a different order. Even if you end up coming back to the original, when you do, it is faster. - There is no need to plan such variations, accident usually suffices to introduce the random element that powers evolution. ${ }^{41}$

[^28]
## The Abbey of the Prehistoric Women

A rude chapel in the wilderness. The Milkmaid enters, to light a candle at the shrine of Annette Funicello.

As she meditates in reverent silence, a hooded figure appears. Throwing back his cowl, he is revealed to be yet another enigmatic figure in a gorilla suit.

A dogmatic adherent of S-matrix theory, he denies the existence of quarks. They debate this and other issues in hadronic physics. She refutes him on every point. Defeated, he takes flight.

Accompanied by a chorus of Nuns in Skins, she sings the aria "I wanted twelve inches, but you gave me a foot."

> (lxxxiii)

Why the strong interactions should have finite range: because the intrinsic geometry of the quarks is not Euclidean but hyperbolic.

You see that from the correspondence between the inverse-square law and the surface area of a sphere. ${ }^{42}$ How this must be modified follows from the form of the Yukawa potential.

[^29](At small distances it looks like a quadratic. Is that right?)

> (lxxxiv)

## What does a woman want?

To be free, of course; she said that anyway, when she began dropping hints. - But what was that supposed to mean? in practice it meant that she wanted to be free to allow her host of suitors to buy her dinner in expensive restaurants, take her fancy places, show her shiny things; to be able to exploit her power of sexual attraction to enrich her experience. Not to hang out with a bum whose brain was in another dimension.

And so I wanted to be free as well: free from being powerless by comparison. Free from the knowledge that she was right to want to dump me. Free from the realization that I could win all and yet remain a loser.

Easier said than done, I perceive.

## (lxxxv)

Is a differential "physical"?
You can ask whether infinitesimals exist in the sense of physical and not simply mathematical possibility.

Trying to picture the operational definition of a Taylor expansion.
be inversely proportional to the square of the distance from the radiant point ...." [Loemker pp. 512-513.]

Even the tangent is problematic. - Perhaps you can draw a curve, and then select a couple of points, and then draw a secant, and then compute its slope - though really who knows - but what you require is to abstract over this process of performing this construction; what you mean by "taking the limit."

Can you imagine a world in which Achilles does not overtake the tortoise? One in which you cannot sum an infinite series. (The calculus as a kind of proto- or metaphysics. A framework on which theories are erected.)

You think of the proposition as analytic and not synthetic, but [1] it is a synthetic assertion that the differential calculus can be applied to the world (much stronger than saying this about arithmetic) - though as to how "empirical evidence" enters into it - well - good luck with that - and [2] constructivist and intuitionist versions of mathematics show there can be radically different senses of "analytic" that might apply here.

There is a sense in which we can consider the elementary calculus to have been confirmed. But how did that happen? it had nothing to do with the usual picture of induction. (Though the process of discovery was inductive in the mathematical sense: Newton and his predecessors worked from examples - in fact Newton's methods were much more inductive than those of his successors, he almost reminds you of Feynman, illustrating the general case by working specific problems.)

The weirder set-theoretic parts of real analysis, not at all so. The Banach-Tarski paradox, ${ }^{43}$ for instance. - The canonical example of a

[^30]nonconstructive construction. - But could you imagine a world in which it could be performed? one in which there could be experiments to confirm the axiom of choice or the continuum hypothesis?

The assumption that measurements can be refined to an arbitrary degree. Whitehead's definition of a point.

Penrose in effect says a differential is not physical: "The mathematical continuum has always seemed to me to contain many features which are really very foreign to physics." ${ }^{44}$

Differential laws. How could you allow them if differentials do not exist.

It is a sort of Machlike reasoning: infinite divisibility should not be possible in a finite world.

Then real numbers (the continuum) would not exist, in a sense. As, a finite machine cannot really store an infinite string of digits.

Of course this isn't quite the point. You picture a string which can be continued indefinitely: potentiality, not actuality. Still Weyl showed this idea is not adequate to recover classical analysis. ${ }^{45}$

As if the logic of the world were Brouwerian. As if the world had a preferred logic. And this is determined, or rather discovered, as if it were an empirical fact. An interesting line of reasoning.

Again, the axiom of infinity as a kind of physical hypothesis.

[^31]Mathematics need not worry about this. So it seems.
Mathematics is the physics of possible worlds. And some worlds are more possible than others.

The independence of mathematics and experience.
The calculus, however, is (or began as) an abstract physics. The differential equation as the embodiment of causality.

A world in which the calculus didn't work would be one in which differential causality did not apply.

The empirical outlook is another one of those ladders that can be kicked away, once you have ascended it.

## (lxxxvi)

## How To Pick Up Girld.

Chapter XXVII. What about the intellectual approach?
It works. Believe me, it works. A friend of mine walked up to a girl at the Dairy Queen and asked her "Would you suppose drama to be the chemistry of souls?" She replied at once, "I think that the theater is the laboratory of the imagination," and within an hour they'd quarreled over Ionesco and decided they didn't like each other very much.

Chapter XXXI. What do monks know?
In a word: plenty. I visited the remote Tibetan fastness of the famed Buddhist order, the Brothers of the Hairy Palm, located in the suburban wilds beyond Lhasa, and spoke to their leader, Brother Dog

Among the true cosmological poets, the preSocratics survive only in fragments, the Timaeus is less a narrative than a mathematical fantasy, Lucretius is often cited as a canonical example but seems - what derivative; the instances that stand out are Dante and Milton, and, rather as theology is kneecapped at the outset by the impossibility of reconciling reason and revelation, so are they constrained by theological frameworks that seem weirdly foreign to their sources of inspiration. - Goethe, Romantic and anthropocentric, is not so constrained. Faust is not concerned with salvation but with the quest for knowledge. - Dante precedes the Renaissance, Milton does not directly acknowledge it, seems almost not to understand that it made him possible. But Goethe is complete and universal, the literary image of the Vitruvian man.

And there is the formula, as he stated it to Eckermann: from Heaven through the world to Hell. To grasp the world entire, in a single vision.

## (lxxxviii)

How Nietzsche came upon the idea that there is a choice beyond good and evil; one in which you don't choose sides, but rather question the nature of the game - from Goethe and Byron, of course, who took the Faust myth and deconstructed the dichotomy, the idea that one must pick between God and the Devil.
(lxxxix)

And where can you find that now? the cosmological perspective of Goethe, the formula "from Heaven through the world to Hell"?

Oddly enough - or not, Marlowe in his office bears more than a passing resemblance to Faust in his study - the first thing that comes to mind is the situation of the private eye in film noir and hard-boiled fiction: a world-weary investigator, self-possessed in any social situation, undaunted by any form of authority, who in order to resolve a mystery undertakes a journey that carries him from the penthouse to the whorehouse and back again; he steers by an internal compass, answers only to the dictates of reason and conscience - and also, one need hardly add, is drawn on and distracted by romantic entanglements; though the figure of Beatrice is here more likely to appear in her negative image, in the guise of the femme fatale, the inner workings of the world are concealed by lies which the protagonist/epistemologist must learn to penetrate, and what is revealed finally to move the sun and all the other stars is not love, but naked greed and the lust for power.

This would actually work, in the spirit of the modern graphic novel: to make Dante over as a wisecracking hard-boiled hero, in hat and trenchcoat, cigarette upon his lip, pursuing some anti-Beatrice through the underworld as she tries to lure him to his doom. - He would never escape the Inferno, but that seems more appropriate for the modern audience in any case.

## Balcony

Stefano, wandering the streets of downtown Boulder, guitar slung around his neck. A song. Hears a belch emanating from a balcony nearby on Pine Street, he hastens to investigate, muttering, What music this? Beneath the balcony of Greta. Source of the belch. He serenades her ("Are you loathsome tonight?") but is assailed by a gang of cutthroat John Denver freaks and escapes only by loosing a noxious fart, leaving Greta smitten. She determines to leave to seek her fortune in the hope of finding this brave troubadour.

She sings:
The odor of your shorts
When you
Are gone
The reek of those reports
Will linger on....

## (xci))

Notes after an excursion
Gertrude Stein owes Oakland an apology.
Towns whose raison d'être is to motivate their inhabitants to get into their pickup trucks and drive someplace else.

Las Vegas [NM] is quintessential. It is laid out along the highway, and as we drive through from north to south we review the seven ages of man: on the north end, new car lots; then used car lots; then a progression from minor to major repairs, carwashes, accessories, tuneups, auto parts, tires, paint shops, auto glass, body shops, transmission specialists, engine rebuilds; finally at the south end a huge junkyard filled with rusting relics. - Gas stations are interpolated throughout, along with a few diners and fastfood joints and what appears to be The World's Oldest Living Woolworth's seriously, one wonders why it is not advertised as a tourist attraction along the roadside, like the Indian Museum and the Meteor Crater. A lot of hard characters in jeans and white teeshirts, pure Fifties. - In the restroom in the gas station, machines dispensing rubbers in brands I have never heard of.

Encino is the period at the end of the sentence. It consists of a few shacks, some rusting trailers, a gas station, and the Rio Pecos Cafe,
whose business card reads "A full stomach ends up with a happy heart. ${ }^{" 46}$ Here I discover digestive organs I had not known I possessed. - Did I hallucinate the Virgin Mary dildos in the gift shop? - God, I hope not, but it is hard to remember; so much was erased by the mescal hangover....

> (xcii)
"Diffeomorphism is illegal in this state," he protested.

## (xciii)

For Gonzago, in the stinking desert:
Go, and suck a gopher root
Proposition wooly sheep
Pour piss down a wading-boot
Drop your pants to Miss Bo-Peep
Try and charm a goat with sugar
Pace your room, and pick a booger
And there
Despair
That ever you grew pubic hair.
Knowing it's no good to brood
Walk to Texas in the rain
Take saltpeter in your food
Paint your dork with Lanocaine
Labor in an ivory tower
Run six miles to a cold shower
Half dead
Abed
${ }^{46}$ Only later did I learn the elegant Spanish original: "A barriga llena, corazón contento."

# Still wish your peter'd turn to lead. 

Onanism never palls
Six times daily flail your plug
Set machines to milk your balls
Store your semen in a jug
Though soon you're jaded; ennui
Will wear you to flaccidity
It never works
No picture's worth a thousand jerks.

## (xciv)

An evening becalmed. Doodling to the radio, struggling with a dumb intuition.


## (xcv)

The Story of the Blues: boy meets girl; girl rejects boy; boy gets depressed; boy gets angry; boy becomes amused with himself; boy lapses into indifference; boy meets girl.

Character is destiny, says Heraclitus.

## (xcvi)

In the voice of Catrina, a husky narrative monotone:
It was Spring. The sycamores were molting. From the South a sickly wind brought the odor of ancient tacos.

I met him at Tico's one Friday evening. We sat in silence at a table by the fire, sipping Margaritas.

How great, how sad the world was. It lay before me, quivering, like an enchilada with too much cheese.

At last he spoke.
"Ah," he said.
I felt he needed prompting.
"Ah?"
But, no. Silence.
I took pause. Smoke rose from the tip of his cigarette, spurting at first almost directly upward, clean, fine, linear, as if drawn, attuned to hidden teleology, seeking some goal marked in the dull plane the
ceiling formed above us, some final target lost in the haze and murk. Then the fire's turbulence arrested it: the stream struggled, twisted, fought; dispersed, its purpose dissipated among the unfeeling forces of Nature. I thought it a symbol of consciousness. And who was Ayn Rand? I turned to him again, a questioning gaze stapled to my brow.

He loosed a pensive fart. I pretended I had not heard.
"Ah?" I asked.
"Ah," he agreed. He exhaled dreamily. "Ah." His eyes seemed fixed far in the distance; focused, perhaps, on the skinflick at infinity. "What is this shit called Love?" he asked.

I could not answer. Embarrassed, I looked down at the basket of Doritos between us. It was full.

He mused.
"One's world must have some center, other than one's self."

I looked up. He was staring at a girl at the next table.
He extinguished the butt.
"Thus love," he said. He looked at me sharply. "And theology."
I wanted no part of this.
"But then?" I asked.
He had not expected this. He paused, uncertain.

I eyed him coolly. "Well?" I asked.
He stayed a moment, studying the waitress as she passed. This seemed to soothe him.
"Well?" I asked again.
He lit another cigarette, pondering his response. It would have to be good. I was his secretary. I would know better.

I knew that he would need no further prompting. I knew the signs. He inhaled deeply; stared moodily into the fire; then, exhaling, turned his eyes slowly past me to the ceiling, and began his recital.

Disparate we are not, alas. Dirac
And Fermi wrote the rules. Identity Of indiscernibles, should we agree In all observables, entails, alack, Repulsion. And though even face to back Two misanthropic quanta may still be (Despair upon impossibility) They cannot occupy the selfsame sack.
Equations of emotion in confusion
By anticonsummate relations rent
This principle must dictate my exclusion
And thus our love's a null experiment.
I'll publish. Title these results, A Note
On Futile Love's Äequivalenzverbot.
He sat reflecting, when he had finished.
"Alas," he said.
"Alas?" I queried.
"Alas," he said.
"It sucked," I said.
"I know," he muttered sadly. "But let me try again."
Has my infatuation given offense?
She seemed a boob'd burrito to my soul.
My effervescent fancy lost control Reamed by the sauce of her indifference I broke my thought in windy innocence And bubbly vowels from my bowels stole In gaseous lust. They formed no mattered whole And thus this love is simple flatulence. My ill-digested passion I've proposed And she, with wrinkled brow and chilling glance
Hath intimated, that which I've exposed Had better been confined to my own pants. This argument thus reckoned in her heart
No wonder then she thinks that I'm a fart.
"Well?" he asked. He knew already what I would say.
"It stank," I said.

He nodded his agreement.
We sipped our drinks. An errant fly buzzed near my ear.
"Ah well," he muttered. "I have yet another try."
When winter's wooly blanket comes

To cloak the fields in white Let's cut our chilly business short
Go home, and fuck all night.
"And as for that?" he asked.
"Wax it," I advised.

A strolling guitarist approached our table, strumming some insipid Spanish tune. I asked him if he knew "Midnight Hour". But he did not. And so we left.

Perhaps even better if the geometry is nonArchimedean; this seems the point, after all, if we make our meter-sticks from quarks we can lay as many end to end as we like and never escape the nucleon.

> (xcviii)

Pretty lady in the library
Am I in your bibliography?
Am I acknowledged? Unrequited?
Have you indexed me, or am I uncited?
Am I your journal of last recourse?
Am I even a peripheral source?

## (xcix)

## Variations on a theme of Zorn

[1] Given a collection of compact spaces, you know [1] the product of any two compact spaces is compact, thus any finite product is compact, [2] the image of a compact space is compact, [3] the product
of the collection, P , has the universal property, that any space which arrows every space in the collection arrows $P$, [4] the set of subsets of the collection with compact products form a nonvoid family of finite character which from Tukey's lemma has a maximal member M which must then [6] arrow every member of the collection (else pick some one that it does not and form the product of that with $M$, contradicting maximality), thus [6] $M$ arrows $P$, which therefore [7] must be compact. - For "compact" you may substitute any other property satisfying the hypotheses, e.g. the same argument works for "connected". - The topological information is all contained in [1] and [2], the rest is abstract nonsense and the appropriate equivalent of the axiom of choice.
[2] Consider a nontrivial measure $\mu$ mapping every subset of a set to the Boolean algebra $(0,1)$. The 0 -kernel is a maximal ideal, the 1 kernel is a nonprincipal ultrafilter. Can this be interpreted as a Haar measure relative to some (nontrivial) group of translations G acting on the set? No: given a group operation, pick some $g$ not equal to the identity, and consider the ensemble of sets A with the property that, if $x$ is an element of $A, g x$ is not. There must be a maximal $M$ with this property, and, clearly, if $x$ is not an element of $M$ then $g x$ must be, else it could be adjoined, etc. This says that $M$ is carried into its complement by left multiplication by $g$, and vice versa; and any ultrafilter must contain $M$ or its complement, but not both. Thus $\mu[M]$ $\neq \mu[g M]$, and $\mu$ cannot be interpreted as a Haar measure.
(c)

The sewers of Paris
Pursued by agents of the wicked Prince, Leonardo and Count Dog find themselves cornered in a warehouse by the docks. Drawing their swords, they mount a vigorous defense but are driven back into a cul-de-sac.
"Surrender or die!" their principal nemesis exclaims.
"Bah!" declares the Count, "our blades have not begun to slake their thirst."
"I was hoping you'd say that," the henchman gloats. Emitting a fiendish cackle, he pulls a lever on the wall which works a hidden mechanism.

A trap door opens beneath the feet of our heroes! They plummet into a maelstrom!
(Pause for a commercial break. Teaser for the next episode, titled "A desert island in the Adriatic": Gonzago, shipwrecked, sits beneath a forlorn palm tree on a tiny sand dune in the midst of a finbespeckled watery expanse. A wooden oar, a small and sickly palm tree, a small bucket of sand with a toy shovel sticking out of it. A giant clam with a woebegone expression. A sand castle in progress.)

When we return we discover them in the legendary sewers of the Old City, engaged in an exploration of the philosophical dimensions of the drive-in cinema as they stroll through labyrinthine catacombs inhabited by bats, toads, neoPlatonist hermits, and strangely alluring female rats who aspire to become nuns.

They concur on the significance of Tarantula and Creature from the Black Lagoon, but differ in their critical assessments of The Navy Versus the Night Monsters. "Mamie Van Doren has done better work, and we both know it," insists the Count.

## Fogelberg in okins

Lost in the jungle when his Zeppelin crashes on a journey to the Himalayas in search of the rare Tibetan moon-poppy, Fogelberg reverts to savagery.

Clad in skins, he hunts as his ancestors did.
We see him crouched behind a tree at the edge of a clearing, stalking an unsuspecting can of chili with an improvised spear fashioned from a long stick and a canopener.
(The can suns itself upon a flat rock. We know it does not see him, because the front of the label is pointed the other way.)

Discovered by a passing talent scout, he is cast to play the lead in an Italian sword-and-sandal epic in which the legendary heroes Thales, Anaxagoras, and Eratosthenes repel a barbarian invasion and conquer the forces of superstition.

An unfamiliar female.

She's forgotten her keys. Will I let her into the lab?
She's apologetic. "I seem to do this every few months, and then it's such a pain, I remember not to for a while, but then I always forget again."

A conventional sigh. Talking to the janitor.
But we're walking down the hall, and what use are good resolves.

She works upstairs. A biochemist, then. A student of the notorious Professor [A]. No doubt he's gotten into her pants.

And what are these pants? What is this outfit? A mutant sweatsuit?
She forgets every few months.

I look at her and grin. "Suggests something about exponential decay and memory, doesn't it?"

The idea isn't much, crude phenomenology, but good enough for idle conversation at five o'clock in the morning. Anyway, even a chemist can get this one.

She's struck momentarily, and laughs, muttering, Yeah, but then remembers where she is, and looks at me, I think suspiciously. "You don't talk like a janitor."

A laugh. "I may look like Robert Ford, but I feel like Jesse James." I let her in.

After this I am a couple of minutes behind, and hurry on the toilets.
[W] has some reaction in progress, and arrives in his laboratory promptly at six a.m. to check up on it. I am mopping the hallway, and address him with a smile:

Early to bed and early to rise Doth not assure one the Nobel Prize

He doesn't think this is funny. "What would you know about that? 'he
asks with some asperity.
These Harvard guys, no sense of humor.
"Wolfgang Pauli drank all night," I tell him. "And never rose before noon."

Gad, there was a role model.

## (ciii)

Born with the Blues, or, Es tut mir Lied
Argument of the work: the Poet, burnt out beyond description, completes a morning's labor and retires to his cloister with a cup of coffee, thinking to take clean breath. Seated among his implements, he is seized by The Blues.

Pulling a harmonica from his pocket, he blows a quavering ' A '.
His song:

Well the toilets were filthy this morning It was no sight for virgin eyes
Yes, the toilets were filthy this morning
And no sight for virgin eyes
There was shit splashed to the ceiling Should have left it for the flies.

Dumped a lot of trash this morning
Swept and mopped all of the floors
Dumped a lot of trash this morning
Swept and mopped all of the floors
Then I wiped out all the ashtrays

And I even cleaned the doors.

It's a Schoolman's fine distinction
Twixt a woman and a broom
Yes, it's a Schoolman's fine distinction
Twixt a woman and a broom
But when you're swept out by the blues
[da-duh-duh-da-duh:]
Can't be too sure who's pushin' whom.
His song complete, he replaces the harmonica in his pocket. Lighting a cigarette, he wonders: is dialectic a metaphor for convergence?
(civ)

## Boetbius redivivus

Held captive in the vile dungeons of the Prince of Abyssinia, Leonardo lies fettered upon a stone floor littered with straw.

Beside him is a rancid bowl of mush; above him, high up on the wall, a television, which shows nothing but soap operas and which he cannot reach to change the channel.

Delirious and prone to hallucination, he is visited by a vision of Philosophy, a hippie maiden who clothes her buxom nakedness only in a pair of overalls. In one hand she bears a table of integrals, in the other a whoopee cushion.

She explains the nature of the Will and the Passions, and why despite his desperate situation she still won't put out.

He accepts all this as the dictate of the Fates, but wonders why he can't at least be allowed to watch reruns of The Untouchables.

Kant's 1755 General Natural History and Theory of the Heavens [Allgemeine Naturgeschichte und Theorie des Himmeld] - much of this is remarkably prescient.

After making the usual arguments for the likelihood of inhabitants on other planets, he waves his hands vigorously regarding the relationships among the capabilities of thinking creatures, their material composition, and how that must vary with distance from the Sun - concludes the beings on Mercury and Venus would be less capable, those on Jupiter and Saturn more so. (No surprise that he frequently quotes Pope on the Chain of Being.)

The exact mathematical principles (viz. the conservation of angular momentum) were not known to him, but he does perceive that (contra Newton) an explanation of the origins of the solar system on the basis of mechanical [as opposed to theological] principles is possible.

More than that he sees that they would also apply to assemblages of stars, which thus are not "fixed", that the Milky Way is the kind of pancake-like structure you'd expect to result, and then extrapolates to the conjecture (not really settled for another century and a half) that nebulae, which display elliptical shapes and (contra Maupertuis) are too faint to be large stars, are similar structures at vast distances.

That is, by waving his hands and appealing to physical intuition, he manages to produce a fairly accurate picture of the large-scale structure of the cosmos. - Really, I find this much more impressive than the Critique.

He is confused in re comets, eccentricities, etc., but identifies the right puzzles, rotation of the planets, plane of the ecliptic, near-circularity of planetary orbits - wonders why Saturn has rings - he is asking the
right questions, with the expectation that they can be answered within physics - and argues (correctly) that the random deviation of the planetary orbits from "perfection" (not perfectly circular, not exactly in the same plane, etc.) indicates an origin in natural forces, not design or the exercise of the Omnipotent Will.
(The retreat of the domain of sufficient reason: Kitto ${ }^{47}$ points out that the speculations of Herodotus about the source of the Nile reveal an assumption of symmetry even in the map of the world; that geography should show the hand of the Divine Architect, exhibit a logic, like the design of the Parthenon. - The gradual retreat: the orbits of the planets, the masses of the elementary particles; now perhaps one might make a similar argument about the value of the fine structure constant.)

He conjectures the universe has infinite extent. (The mathematical difficulties were not known to him, e.g. Olbers' paradox and Einstein's argument about the gravitational instability of an infinite Newtonian cosmos.)

A certain awkwardness is introduced by the necessity of constantly having to look over his shoulder for possible accusations of sacrilege, but in those days all the senses were on alert: you didn't so much hear footsteps as smell the burning flesh of Bruno, still lingering on the air.

## Gonzago Furioso

Gonzago wanders aimlessly through a junkyard, addressing long incoherent speeches to invisible companions. Dogs howl when he approaches, sheep are visibly nervous. Vultures circle overhead, trailing advertising banners.

[^32]
## Meanwhile...

Leonardo receives a bag of chocolate chip cookies in which Philosophy has concealed a remote and a jackhammer. He changes the channel and makes his escape.

Drawing a flowchart of the day's anxieties. Attempting, without success, to isolate the critical path.

## (cviii)

Los Angeles is destroyed by an earthquake. It warms my heart to see it. Chaos, conflagration, cataclysm. Broken glass rains down on shattered streets. Woman, children, corporate executives run gibbering through the ruins, pursued by the minions of catastrophe: mad slavering dogs, crazed soldiers with martial-law complexes. A wall of water at the last, as the dam bursts. The storm drains are flooded; I wonder whether this finishes off the last of the giant ants.

And here's the end. When Charlton Heston dies, you know the movie's over.

Who was that girl?

Dear, etc.:

Ah, God's mercy on a poor hippie boy. - Victoria, Victoria. - An evening lost to ennui, becalmed before the babbling screen of the detested idiot box, and then this, this searing bolt from the ozone.

Victoria. Let me breathe your name, though this breath be my last: Victoria. - Am I breathing it correctly? - If I exhaled too quickly, 'twas but a measure of my passion. Victoria.

But ah! your hair, your eyes, your ears, your nose, your throat. And, zounds, what knockers. Ah, Victoria. Perhaps I digress.

And for myself? ah, little can be said. A European adventurer of mysterious antecedents, independently wealthy, though the source of my means must be left in tantalizing obscurity, I am dashingly handsome, a natural athlete, and renowned for my cultivation and my wit in every salon on the Continent. I drive a D Jaguar, play the violin (a Stradivarius given me by Jascha Heifetz), and smoke four packs of Balkan Sobranies a day with no apparent ill effects. I am told my dress displays a casual elegance: my mother was a tailor; she sewed these new blue jeans. My father was a gambler, Lord, but that leads us too far astray. Pursued by the agents of a diabolical genius whose plot against the fabric of civilization I had foiled in the very nick of time, I was forced to travel incognito two years among the Himalayas; you may have read of the remarkable explorations of a Norwegian named Sigerson. For a season thereafter I toured from England under the name of Jeff Beck. But what of that. It is said that I hold an uncanny power of attraction over women; this I would not credit, were it not the case that I cannot venture into Woolworth's, lest the checkout girls attempt to jam their hands down my pants. I never eat muscatel grapes. Myself and a chosen band of twenty, who would, as I guess it, follow me to Hades, yea, Lubbock, gave I but the word, have engaged these last few months in spiriting French aristos from the shadow of the guillotine, this beneath the very noses of Republican agents. I've been consulted by Richard P./Murray Gell-Mann had me for tea/Still I'm broken-hearted/How can I get started/With you? Victoria.

What use this senseless overweening passion? What use this facile flow of words you're destined not to hear? Ah, Victoria. I'll be all right
when the swelling goes down. - But let us meet, though it be at the ends of the Earth. I hope those ends are yours. - Until then I remain:

Your tumescent admirer, etc.
(cx)

A bottle of ink at one end of the desk, a bottle of Scotch at the other. A shotglass, a notebook, and a fountain pen between them.

## (ccxi)

The term ended. We slept twenty-four hours to recover, and then decided it was a good day for a walk, bright, clear, breezy thus with little smog. Kenny put a flower in his hair, to declare his allegiance; I hadn't bathed for days, which manifested mine. We set out west down Colorado Boulevard, determined to follow it to the sea.

We were met with stares, but the populace were accustomed to these spectacles, the crazed undergraduates venturing out into the town. They gave us a wide berth nonetheless - we were apprentice sorcerers, dangerous and unpredictable; we might have nuclear weapons concealed upon our persons. I fancied them crossing themselves, muttering prayers beneath their breaths, hanging garlic in the shop windows as we passed.

We stopped briefly at a bookstore along the way. I glanced curiously at the porn and purchased a paperback Sartre. It was Spring, and a young man's thoughts turned to existential anguish.

We walked into the west, into the urban landscape, the desolation of banality, film noir ambience in muted color, grimy grayish-yellow brick, windows no one would want to clean even if they could, blackened sidewalks, odiferous dead end alleys, dangling fire escapes, buildings rimmed with ledges from which one could only jump.

We passed the Salvation Army, St. Vincent de Paul, the adult theaters, the bus station, and reached at last the Pillars of Hercules - the Arthur Murray dance studio.

Beyond this lay only a baffling abyss: mermaids sporting on the rocks, sea serpents undulating through the waves. - Here there be Tygers.

We looked at one another, shrugged, turned around, and walked back.
A block or two short of the campus we paused for a traffic light. As it changed and we were about to cross the street I stopped abruptly. Stricken. Stabbed by insight, the derivation of an internal contradiction. - "Kenny," I said, "I think I'm going to kill myself."

He laughed. "The fuck you are," he said.
Once again, he was right.

## (cxii)

## Gleichbeit in Doppelläufen

Coffee, and we talk.
"Did you move?" I ask. Solicitous.
"No," she says. Her eyes downcast. Conscience, or the affectation of conscience. "I packed, but then everyone has been so nice."
"Ah," I say. The nod begins on the upbeat. Understanding.

Ostentation? The boys, alarmed. Conciliation. Steps taken to preserve their little plot of Earthmother.

A side glance toward her chest. Perhaps not so little.
"They planted a garden," she says.
Assuredly, Earthmother. And then, Candide: Mellowing out.
"They put zucchini in, they know I like zucchini."
I nod again. Laughing inwardly, thinking, Good.
Gary enters. He waters his plants. We talk about plants.
"I like hanging plants," she says. The peculiar smile. "The kind that droop, you know, not, you know, the kind that" - the significant pause - "stick up straight."

I nod again. Laughing inwardly, thinking, Bad.

Later she remarks, smiling, when he's said he keeps his hair short so that he can feel the sun on the back of his neck, that it's like a woman's caress. - Is the sun feminine then? One's member, heliotropic.
(cxiii)

The salutary effect of Giuseppe upon depression: buoyed up by his ego, as if lifted by a hot air balloon.
(cxiv)

## The Flight to the Moon

Informed of Gonzago's sorry state, Leonardo seeks out the counsel of his mentor, the legendary Bluesman, Mississippi John Donne.

He ascends the lonely peak where the master dwells, to a high alpine meadow where sits, a thousand miles from nowhere, a one-room country little shack. Leonardo pounds upon the door: "Mississippi! You there, man?"

The Sage emerges. He is ancient of days, more ancient of nights, and hops about on a pogo stick. Leonardo explains the situation. "Clearly he has lost his wits," Mississippi opines, "and we must retrieve them. To my chariot, then." He indicates a battered camper parked in the pasture. It is a '34 wagon, and he calls it a woody. Strapping a guitar to his back and stuffing a harmonica in his mouth, he blows the phrase that summons his coursers, eight wingéd steeds with bioluminescent racing stripes. No sooner are they harnessed than they enter into the element of air, carrying Sage and Paladin thrice widdershins around the mountain before ascending: upward, ever upward.

The voyagers study the landscape far below them, steamboats plying the trade routes of Lake Geneva, the Horde as it advances on Kalamazoo, the Duke's concubines sunning themselves topless on the palace roof. Rising through the stratosphere, far off they espy the War Blimps of the Amazons sortieing from Laputa. The terrestrial sphere sinks beneath them and recedes, to become a glowing orb in the blackness of space.

For seven days and seven nights they sail the air, and on the eighth day they see a great country in it, resembling an island, bright and round and shining with a great light.

They descend into a giant junkyard, repository of everything misplaced in the terrestrial sphere. Here they are met by Empedocles, the proprietor, who guides them through the detritus of civilization, the Lost and Found of the lower world, great mounds of keys, overdue library books, unmatched shoes and socks, unrequited loves - the spirit of the Sixties, the thirty bucks you thought was going to cover the utility bill - finally through a litter of half-empty bottles, labeled
with the names of assorted worthies, to a dead refrigerator whose door is hanging open. Within, on a shelf, sits a corked bottle of Cuervo, nearly full. "You got here in the nick of time," says Empedocles. "One more shot and he'd be going to law school."

Returning to the earthly sphere, there is a moment in their descent when they pass the Point of Universal Vision, from which the entire world can be seen in a single glance. - A flicker of clarity, and then it is gone. - "Wait a minute," says Leonardo, "for a moment I understood quantum mechanics."

But they cannot go back. They must descend. They must lie down where all the ladders start.

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(cxv)
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Whatever its ontological status, the black hole is a wonderful metaphor: the dark star, the devourer of souls, the entropic sink, the asshole of the universe, the boundary between the outer and the inner worlds, the interface (therefore) of the internal consciousness and the external spectacle of nature, matter and vacuum, life and death, noumenon and phenomenon, Eros and Thanatos, shit or go blind.

## (cxvi)

## Presupposition

.There is a line of reasoning you often see in "philosophical" expositions of the theory of relativity which goes as follows: in classical physics there was a hidden presupposition of the definability of the simultaneity of events, no matter what their spatial separation; Einstein exposed this presupposition and recognized its falsity; the rest was straightforward.

This is correct (as Einstein himself said, all his confusions evaporated once he realized that time was the problem, that time and space had to transform together) but completely misleading, insofar as it seems to imply a kind of logic of presupposition that isn't valid.

Because what it suggests is that, if one were but to provide an adequate set of axioms for the system of physical kinematics, all such confusions would be eliminated. You have the picture that you could simply run through the list (once again Leibniz, "Let us calculate") and flag some assumption about simultaneity when the verification algorithm (aka "comparison with experiment") returned a negative.

Here as so often we return to the logical positivists and what they thought they had learned from Russell.

It seemed important to them to axiomatize theories.
The rationale seemed to be that in so doing one could isolate presuppositions.

And thus that to check a theory, to measure it against experience, it would suffice (somehow) to run down a checklist: is Axiom I verified by experience? etc.

Setting aside the absurdity of this idea - never mind parallel lines meeting at infinity, how do you verify there are no perpetual motion machines of the first kind? - there is a clear assumption that the axioms represent the essential assumptions of the theory; that the logical structure of the system will be correctly exposed by the correct presentation of its assumptions. - That there is a right way to present it.
(Of course compare Bourbaki; with the difference, however, that Bourbaki never claimed their presentation was unique, only that it was the best, the most illuminating.)

## Geometry

Geometry, as the oldest part of mathematics to have been axiomatized, is a good example.

There are many ways of presenting it.
Hilbert. e.g., extended and refined the Euclidean axiomatization to a couple of dozen propositions. ${ }^{48}$

Tarski, on the other hand, reduced plane geometry to the theory of a single 4-place relation. This does not mean that plane geometry is "really" about this four-place relation, which no one ever heard of ${ }^{49}$ until Tarski invented it, or that its "presuppositions" are the axioms Tarski wrote down for it. It means that out of an infinite set of theorems of plane geometry there are an infinite set of subsets of theorems from which all the others may be derived by the rules of inference, and these make one unusually concise example.
(Though if the object were to identify questionable assumptions, the better strategy would be the opposite, to make as long a list as possible of the weakest possible axioms, so that you could run through them one by one and assess their separate plausibility.)

[^33]
## Euclid

You get the impression that Euclid by providing his axiomatization exposed the presuppositions of his geometry: here is the problem, he said - the parallel postulate - as making a list of his assumptions has revealed.

But this belittles Euclid, and trivializes his achievement. - He had the intellectual honesty to recognize that there was a problem, the analytical capacity to identify it, and the creative insight to find an arrangement of the assumptions of geometry that isolated it.

## Integration

In real analysis ${ }^{50}$ the theory of integration has been studied so thoroughly that there are hundreds of different versions of it. All begin as attempts to state unequivocally what you mean when you say "the region $X$ has area $A,{ }^{" 51}$ all are correct, and no two are exactly alike (it would be interesting to attempt a sort of biological taxonomy).

But if the definite article cannot be applied to "the" theory of integration, then it can't be applied to "the" presuppositions of the concept of area either. Because what presuppositions depend on which theory. and obviously there can be as many as you like.

So one cannot refer to the analysis of integration, to the unique nature of integration.

But why would you think there ought to be a single correct theory of integration?

[^34]Because you think integration must have a nature, an essence; and that this is what analysis uncovers.

So presupposition involves this idea of essence. ${ }^{52}$ And of course that is what is illegitimate about it.

There is a mistaken idea of analysis that goes with this: that analysis is simply a matter of taking things apart; that the parts of the thing, and the way they fit together, are already manifest in the apprehension of the object. - You assume not only the factorization into simple objects - the analogue of the factorization of an integer into a product of primes - but unique factorization.

Of course this is completely wrong.
In fact much of mathematics can be viewed as a series of attempts to take the theory of the real numbers apart and put it back together, to try to figure out how it works. In that sense it's all just an attempt to understand the presuppositions of magnitude.

So there's never any unique way of listing the assumptions of a theory, and then as it were checking them one by one.

In practice it's exactly the opposite: presuppositions are identified first as theorems derived from an existing set of assumptions. Interesting theorems have provocative statements, which (in the case of physical theories) motivate the search for counterexamples. If one can be found, the theory is then rearranged to promote the theorem to the status of an axiom, so that alternatives may be studied.

[^35](In mathematics it is said that important theorems become definitions. The canonical example is the Heine-Borel theorem, the model for the topological idea of compactness.)

This also creates a sort of optical illusion (Russell I think was susceptible to it) that in reducing the size of an axiomatization, rendering it more compact, that you are somehow reducing its exposure to refutation because you are "presupposing" less. - But this is absurd. If two formulations are logically equivalent, then they "presuppose" exactly the same things.

## The principle of relativity

There is nothing radical about the principle of relativity; that is in Galileo, who points out that if you drop a weight from the crow's nest of a moving ship, it falls at the base of the mast, not behind it. ${ }^{53}$ There is no mechanical experiment you can perform to distinguish a state of rest from a state of uniform motion in a straight line.

What was radical was to apply this principle to electrodynamics, specifically to claim it entailed the invariance of the speed of light, and then to take this and not the familiar version enshrined in mechanics to be fundamental - thus inverting the natural direction of explanation: to suggest that you shouldn't derive electrodynamics from mechanics, say from some mechanical model of the ether, but rather should derive mechanics ${ }^{54}$ from electrodynamics. - To say that

[^36]mechanics presupposed electrodynamics, not the other way around. Thus commenced the merry sport of performing Gedankenexperimente with meter-sticks and clocks and beams of light.
(The rest of the idea, that Klein's program of classifying geometries by their definitions of congruence, and therefore in terms of their invariance groups, should be applied to the foundations of physics, that the Lorentz group of invariance of the Maxwell equations and not the Galilean group of classical mechanics should be taken as fundamental, and that the space on which this group acted was not the three-dimensional space of classical mechanics but the fourdimensional space-time of relativity, was first clearly articulated by Minkowski in a famous lecture ${ }^{55}$ about which Einstein complained "Now that the mathematicians have got hold of the theory of relativity, I don't understand it myself.")

## Yeats

- "...somewhere in sands of the desert," etc. - in what sense does "The Second Coming" presuppose "Ozymandias"?

From the lion body and the head of a man we might infer the blank and pitiless gaze, but not the reverse - though if we begin with the desert and the scattering indignant birds we might infer something monstrous, the flight of the birds suggests it is moving and has surprised them, the fact that they have time to squawk suggests it is moving slowly (somehow we want already to add inexorably), the setting might suggest a lion, something ominous in the tone might suggest a monster, if some kind of world-historical monster then a chimera, etc., etc. - the combination of images has an organic unity

[^37]that allows a sort of holographic restoration of missing pieces of the picture from the rest.

Still the directionality of logical inference is lacking, or at least is more obviously ambiguous than it seems in mathematical forms of reasoning.
(Note that though you might analyze this in terms of habits of association, the desert and the pitiless sun, the pitiless sun and the eye of God, etc., and claim these were simply reinforced by literary example, founded in history as it were, the - pure, raw - empiricist analysis of logical reasoning - as, say, the behaviorists would have it - is no different. So it isn't obvious that the one notion of inference is more fundamental than the other.)

## Jello

Of course there is also a sort of reductio ad absurdum in which everything is connected, all things are one, and the logic of the Hegelian world-jello applies: "To call him an American presupposes the hot dog, the 'Star-Spangled Banner', and a chairman for the Federal Reserve Board." - Whole libraries have been filled with this nonsense, tragically taking up space that might better have been devoted to theories of the Hollow Earth -

## (cxvii)

## The siege of Kabul

Outnumbered a hundred to one, the defenders of the city stand atop its walls hurling water balloons at the Abyssinian Horde that surrounds them.

An orderly reports to the Duke. "Sire, our squirt guns are exhausted." - "Well, piss on them then," says Phil.

The siege engines of the Mongol Horde roll forward: a giant pair of dentures (the Duke has advised the invaders to bite his shorts, and the Prince is happy to oblige), a catapult that hurls cream pies, a giant can of shaving-cream.

The Prince addresses them through a giant bullhorn: "Duke, we got your Other out here!"

In the distance, a ghastly Doppelgänger is seen lumbering toward the city.

## Trial by combat

Under a flag of truce (a tattered pair of undershorts held aloft upon a stick) representatives of the Duke and the Prince negotiate the conclusion of the War in a Trial by Combat - this, a tag-team wrestling match between the champions of each side.

The referee introduces the combatants: "In this corner... representing the forces of peace, love, and universal harmony.....the paladins of the Duke of Bohemia, Gonzago and Leonardo!" - Weak ripple of applause. - "And in this corner....representing the Prince of Abyssinia and all enemies of Reason and Justice....a mad frothing rhinoceros and a giant octopus!" - Loud bestial roars of approval from the assembled Horde.

With no further preamble the octopus seizes Leonardo and begins slamming him up and down against the canvas. Meanwhile the rhino chases Gonzago several times around the ring before goosing him into the cheap seats.

At ringside Phil and Stefano provide color commentary and swap gossip about the forthcoming tour of the Count's latest ensemble, Doctor Dog and His Band All Agog. - "Their Yardbirds medley is awesome," says Phil. - Stefano concurs.

Saved by the bell, Leonardo and Gonzago are dragged back into their corner, where restoratives are applied as the Ring Girls parade around holding up placards and flashing their tits. - Phil utters words of encouragement, and signals the house band, which strikes up "The Ride of the Valkyries". - The bell sounds for the second round. The two paladins stagger to their feet and prepare to face the music.

Suddenly a meteor strikes and the Prince's legions are obliterated!
A rain of popcorn commences, followed by a rain of frogs.
"I told you guys the fix was in," says Phil.

## Symposium

At the party after the war, Leonardo, Gonzago, Stefano, and Count Dog, clad in Grecian robes and sporting laurel wreaths, take turns attempting to define the Nature of Love.

Leonardo maintains that it is the motive force of the cosmos. He proves this with an elaborate mathematical argument, filling a blackboard with categorical diagrams as aid to his demonstration.

Gonzago laments that it is but a disguised biological imperative, which condemns them all to elimination from the gene pool. He constructs a molecular model of the double helix to support this thesis, using toothpicks and items from the fruit bowl.

Stefano argues for its practical utility, since prolonged masturbation is bound to lead to carpal tunnel syndrome. He dissects a carburetor to illustrate.

Count Dog insists that it is an exercise in the theater of the absurd. He proves this by playing the saxophone break from "The Loco-Motion". A chorus of dwarves and lechers take up the theme, showgirls enter, and after a dance number pregnant with allegory roll out a cartload of cream pies and engage the company in a food fight.

Scraping pie from his face, the Count concludes with a stirring peroration which elaborates his theory that the Woman is Classical, the Man, Romantic, and summarizes:

Let Love, let Art, let Fortune fail you all
What matter that? You've always alcohol.
They all drink to that, indeed merrily drink themselves to stupefaction, and at break of dawn only Stefano is still standing. He takes his leave, and a Title announces:

At the Lyceum he took a bath and passed the day as usual; and when evening came he retired to rest at his own home.

## Loose ends

The Duke finally tracks down the Milkmaid, verifies that the brassiere fits, and proposes to make her his concubine. She spurns him, and when he attempts to carry her off by force, knocks him cold with a single punch. His minions are debating whether to avenge this mortal insult when a passing Zeppelin disgorges a company of Amazon warriors, who put the foppish courtiers to flight.

Sunshine is invited to join their company, and thus commences a life of piratical adventure among the Bimbos of the Stratosphere.

## A comedy endo with a marriage

Leonardo and Gonzago repair to Tijuana to marry their hands, in a two-ring ceremony in which they pronounce their vows before the Justice of the Peace, an enigmatic personage in a gorilla suit.

They emerge from the chapel to run the gauntlet between two rows of jeering ex-girlfriends, who hurl insults and pelt them with donkey turds and rotten vegetables.

## Dante

It is like the woodcut: Dante sticks his head through the sky and looks upon the machinery that turns the world.

Why is the principle feminine? - Well, why is Nature always female? the theoretical physicist has the same instinct.

Really he makes the entire cosmos rotate about the polar opposition of his desire. Everything is ordered according to his tastes and judgments. If he is capricious, this is only the imitation of God.

Looking at La Vita Nuova, it is not about love for some individual woman; Beatrice is only the occasion for the meditation, what interests Dante is Dante - his reactions, his visions, what she awakens in him. ${ }^{56}$ It is something like the way you have to reason about abstractions: you cannot grasp the Platonic Idea directly, and so you

[^38]use some concrete example to fix your thinking; to mediate your understanding.

So nothing about Beatrice is really about Beatrice; but rather what she stands for. Which is something external, something outside the universe.

Like the limit of an ultrafilter. - Well, there I go again.
(cxix)

The recurring sense that you are a character in a fiction whose plot and purpose you do not understand.

## Epithalamion

When I consider how my dork is bent In posture of disuse now ossified
And that lone urge will animate this hide Lodged with me useless, its outlet absent Mocking my amorous unemployment And limp pathetic organ unapplied "What future for this Lust, with Poon denied?"
I sourly ask. A voice indifferent
Replies: "Lust's jaded; pulls no more the nipple Of Ambition. One spoonful more or less Is naught. He bids thee not inseminate For ought. Thousands at his bidding couple And frantic fuck themselves to senselessness. They also serve who only masturbate."

A signal, perhaps, on a noisy channel. A statistical fluctuation, some deviation about equilibrium.

The luck of the airwaves. With no prior warning, you've dialed in Rangoon.

Late at night, on the radio.
Or like a stream, perhaps. You cannot see through to the bottom, the water's turbulent. But then the ripples as it were cancel out. The rocks appear against the sand, a little landscape, in clarity.

The telescope and the atmosphere: there are those moments, the camera cannot capture them, when everything is quite unexpectedly still and clear, and these moments are only for the living eye. For the observer, these are like moments of insight.

At such a moment Schiaparelli saw the canals of Mars.

## Song

Blame it on the Coca-Cola
Made his bowels swell
Blame it on the Coca-Cola
Made his knickers smell
It began with just a whiff of doubt
And ended up we gagged and all passed out
Blame it on the Coca-Cola
The colon's love.
(It began with just a phrase in French
And ended up a gruesome stench)

## (cxxiii)

The idea of the Tractatus that there need be no more than one metaphysical subject. A hint of the identity of indiscernibles in this: if they all look alike, they cannot be distinguished.

It is the same transcendental observer that appears in the limit in Von Neumann's analysis of measurement. - The Cartesian Ego as point at infinity.

Looking at a picture. Perspective. The eye. And in the picture, the dual, the vanishing point.

In writing a journal, there is a focal personage on this side of the plane of the image. But who occupies the focal point on the other?

## (cxxiv)

The summer moon. It drives men mad, and women out in search of cheap psychotherapy.
(cxxy)

Commandeering an unused laboratory, filling it with electric arcs and bubbling retorts. Resuming the quest for the secret that reverses gravity, entropy, the flow of money from my pockets into the radiation sink that is the world. If I meet no female's specifications, I must create one who will meet mine. - Bride of Wittgenstein. - The poster shot, a howitzer brassiere on a laboratory bench.

# Exercises in La Grange meter ${ }^{57}$ 

At interludes
Monastic dudes
Hose beasts who will not scorn them.
To gloss this note
Aquinas wrote
De sulva capricornum.

## (cxxvii)

## A Cave in the Perusian Anded

Which is set, perhaps improbably, in a sylvan glade bedecked with wildflowers. - A basketball hoop above the entrance. - Lawn furniture scattered about. - A kiddie pool in which float assorted toys and rubber duckies.

Stefano emerges, stretches, farts at stupefying length, and delivers himself of his morning aria, a soulful lament relating his existential dismay at having nothing, really, to complain about. He skewers his morning can of Spaghetti-Os with a sharp stick to cook it over an open fire, and consumes its contents absently, reading J.D. Salinger with his spare hand.

Finishing his repast, he makes his way to the small stream that flows past in the foreground to make his morning ablutions. A Jack Daniel's bottle floats past. He plucks it from the freshet, and sees that there is something inside it.

[^39]"A Message in a Bottle!" he exclaims.
Extracting it, he discovers the following:

## Die Kunst der Fingerfertigkeit

(1/27) "Purity of heart is to think one thought." - Another lost cause.
(1/28) Padding very carefully down the hall in my holy tennis shoes. - If you can't feel the ground with your feet, you may end up feeling it with your face. - Encountering her coming the other way. - As an experiment, I look at her directly, and smile. - She turns her face away, and smiles at the wall.

I'm getting better at this. I wait until she's out of sight and hearing before I burst into uncontrollable laughter.
(2/1) "Only one thing will get these hands clean, Mister: skin grafts."
(2/7) The old idea of building up the elementary particle spectrum from quantized black holes: ontology recapitulates proctology.
(2/11) Recalling how they always laugh when they say "She's not your type." Meaning something like, she has an oxygen-based metabolism. - No, nobody's going to set you up. You're alone in this endeavor, as in everything else.
(2/14) True love is what is written in the stars. But when you read what's written in the stars, there's still the fine print, the part that can only be seen through a telescope.
(2/16) Exercises in Cartesian Angst: staring desperately at a pack of cigarettes, trying to convince yourself that you know that it exists. - While this is going on of course you generally smoke three or four of them.
(2/17) iamb what iamb and that's all what iamb
(2/22) A girl driving away in an MG. - What is the Pang? that moment of helpless yearning, that sinking feeling in the very groin of the soul. - A lost throb of recognition, for the Other, the severed opposite, the object of desire.

Return of the Pang. - Son of Pang. - Beach Blanket Pang. Escape From the Planet of the Pang. - Beyond the Valley of the Pang. - Abbott and Costello Meet the Pang. - Dichtung und Pangheit.
(2/24) "The equations of motion of a thought." - What did Hume want to do, after all? to become the Newton of the inner world, describe its System, its physics and cosmology; the natural conclusion would have been just that, a set of differential equations describing the behavior of its constituents; their laws of motion. - So even though when you take this apart it means nothing - can thoughts be localized in space and time? do they rotate? resist acceleration? oscillate in place? bounce back at you when you throw them at a wall? - it means nothing in an interesting fashion.
(3/11) Talking in the past tense, she about the old man, I about the old lady. - "She left me for an NMR," I say. - She thinks this is hilarious. - Of course another chemist would.
(3/12) Realizing that I must be developing perspective, because I have stopped getting a boner whenever she speaks to me.
(3/13) Shouldn't that say something,. though? that when I read Kant on the theory and composition of the heavens I can correct his mistakes and applaud his anticipations, I know more than he did about astronomy. But reading Hume I know no more than he did about the contents of introspection. About the System of this World.
(3/14) A couple of old hippies trading war stories. - Are the Sixties really over. - You could always tell a narc by his boots. - When she first came to Boulder she lived in a cabin in Ward, without running water or electricity, cooking on a wood stove. The isolation was intense, when she came down into town it would burn her out for days. - When she returned for grad school at first she slept in the lab. - She hung beads over the entrance. Her adviser freaked.

She wonders why it is I am sweeping floors. - Indeed, how did I become a brilliant young man on the way down? A rapid internal calculation as I edit the possible responses, not too facile but why quote Wittgenstein and make matters worse. - I explain that I tried to get a real job, but there are none; that graduate school is bonded servitude, and I prefer being left alone to think; and anyway there is historical precedent, look at Einstein woodshedding in the Swiss Patent Office.

She is taken aback. "Do you really compare yourself to Einstein?"
"Sure," I tell her, "and I compare my dick to a telephone pole."

A curious reaction.
(3/19) Dream: a Girl, who figures as a character in a series of episodes. You meet her finally, but this precipitates a phase transition, the recovery of consciousness. It seems like the annihilation of matter and antimatter. - The realization that the female was a fiction, an invention, which by definition cannot be embraced.
(3/21) "Since men almost always follow the paths trod by others, and proceed in their affairs by imitation, although they are not fully able to stay on the path of others, nor to equal the virtue of those they imitate, a wise man should always enter those paths trodden by great men, and imitate those who have been most excellent, so that if one's own virtue does not match theirs, at least it will have the smell of it. He should do as those prudent archers do who, aware of the strength of their bow when the target at which they are aiming seems too distant, set their sights much higher than the designated target, not in order to reach such a height with their arrow, but instead to be able, by aiming so high, to strike their target." [Machiavelli, The Prince VI. $]^{58}$
"The smell of it," indeed. - Surely Einstein didn't fart like this.
(3/24) Cover illustration for How To Pick Up Girls: a haughty creature stares evenly at the camera. Her hand grasps a fork, which has been stabbed through the hapless peeled banana lying on the cutting board before her.

[^40](3/28) Von Neumann theorems: on the one hand Feyerabend must be right, an improvement on quantum mechanics would modify the theory, and any such theorem would cease to be valid. So it cannot rule out alternatives, real competitors.

But it does say that any theory which strictly contains quantum mechanics cannot obey classical statistics. So the original idea, that there must be some other interpretation of the formalism that preserves the phenomena, is wrong. (Here the goalposts have begun to move.)

The ultimate refinement of the theorem, however, should be even stronger than the generalization of Jauch/Piron. It should say that the formalism cannot be modeled set-theoretically.
(4/1) "They screw their dicks in one thread at a time, like anyone else."
(4/6) Regarding the Machine: a sentence says the same, in red ink or black. Thus also should the form of the mental be indifferent to the accidents of carbon chemistry.
(4/13) The purpose of a (physical) theory of measurement should be to set down general principles (in the spirit of relativity or thermodynamics) governing the transfer of information between physical systems.
(4/19) Another conversation with Sweet William. He is mouthing something inconsequential about Wisdom and Destiny, but I interrupt him: "Here's something that bothers me," I say. "You know that Reader's Digest version of Mozart, that he was a genius who suffered mightily for his art, that his end was miserable and he was buried in a pauper's grave but his greatness consists in the fact that you can't hear any of that
misfortune in his music, that it is inspiring, light of heart, fundamentally cheerful and life-affirming despite the darkness of his personal experience?" - He nods, but of course. - "But what if it was this instead: that even though he may have thought he wasn't he really was happy and just didn't know it?"

His expression darkens. He inhales asthmatically on his Pall Mall. "God," he says, "that is twisted."
(4/28) Deutlichkeit in gebrochenen Akkorden - The proprietors of the Good Earth have industrial-strength cocaine habits, which have erased what otherwise would be more than adequate profit margins, and thus must keep casting about desperately for stratagems that will pack the house. On this occasion they have hit upon an amateur strip contest at Happy Hour, which Giuseppe insists we must attend. The place is jammed, the noise is deafening, the girls competing for the prizes are enthusiastic and unmistakably mammalian, and the whole spectacle rapidly becomes boring; I find myself studying the crowd rather than the stage, the way the guys 'eyes harden as they stare intently, lean forward, and inhale sharply upon their cigarettes. - Thus I realize presently she is sitting at a table in the middle distance with another girl and three guys, the usual trio, the engineers, all taking turns shouting into her ear, all-too-obviously trying to persuade her to enter the contest herself. - The Pang assaults me. I feel alienation, the Angst of the Outsider, the sense that we inhabit spaceships passing in the void and I can only study her through a telescope. - I tell myself that if I were to get up and go over to talk to her, I would surely choke, and best then to forget about it. - But after a couple of drinks all this Colin Wilson shit recedes into the Empyrean and a lull in the action prompts the engineers to get up and go join the line for the bathroom. - I drain my glass, make excuses to my companions, and cross the room. - It is still very loud. I have to whack her a couple of times on the shoulder to get her attention. - A very
animated response. Now, mirabile dictu, I am the center of attention. - She doesn't understand the fascination. I confess that I don't either. - "When you've seen one boob, you've seen them all," I tell her. - "Right," she laughs. "That's it exactly." Her friend excuses herself and leaves. "Alone with the engineers," she groans. They return and resume the singleminded pursuit of their objective. They lack imagination, I score effortlessly. "What's so fascinating about my body?" she wants to know. "I don't know," I say, "what's so fascinating about Halley's Comet?" But the game begins to bore me - Gentlemen, I want to ask, why look, if you cannot touch? - and presently I take my leave. "I think I'll go see if my friends have finished masturbating," I say. General laughter. Still master of the exit line, I beat a retreat in good order.

Another drink and I too must hit the head, not crowded now the stage show has resumed. I run into her, almost literally, as we emerge from opposite doors. We laugh and crack wise at the spectacle. "It's too much," she says, "I have to get out of here."
"You want to go somewhere?" I ask.
"Sure," she says. - "God, you're so right," she says as we make our escape. "When you've seen one you've seen them all."

As it turns out, not at all the case.

Stefano finishes this, and stares long into the distance.
He rises, straps his guitar to his back, and packs a baloney sandwich, a banana, and a bottle of beer in his satchel.

He follows the stream to its source, a lake high among the mountains. Negotiating its rocky circumference, he climbs a boulder on its edge. Taking up his guitar, he plays thirty-two bars of "Manic Depression", unstraps it, regards it for a moment with an indefinable expression, and then casts it out over the waters.

It sails like a boomerang, farther than one could possibly have imagined, to the center of the lake. An arm, clothed in white samite, mystic, wonderful, emerges from the waters to catch it by the base of the neck, brandishes it three times, and draws it under in the mere.

The drone of engines is heard upon the air. A Flying Boat descends, and taxis to the shore. It is the Sloop John B, piloted by Pussy Galore. She smiles invitingly from the cockpit.

A gangplank is extended. Stefano enters the vessel, and is carried off to the Isle of Avalon, where he will dwell among the blessed, jamming with Hendrix, until the day foretold by prophecy when his people call out in their needfulness, and he shall return, to take a job at $\$ 6.54$ an hour plus medical and dental.
(cxxviii)

A bad case of Vacuum Brain. - Staring into space, watching smoke blow out a window.

Another season in these clothes, I reflect, and I'll have to have them surgically removed.

Seeking career opportunities for hack writers of metaphysical treatises. - The Famous Philosopher's School, advertising on a matchbook: Can you picture this proposition?
(cxxx)

It is better to light one fart than to curse the darkness.

## (cxxxi)

It was nearly eight, and I was thinking about the Chaplin feature on campus. That wasn't until nine. So I was reading. "A message from space!" it began. I thought about that. But then the telephone rang.
"Hello," I said. Cautiously.
"Hello," she said. "It's me," she said.
"Ah," I said. Relieved. "So it is." I looked around for a chair; dumped some papers on the floor; sat down. "And what would you report?"
"Oh," she said. "I'm all right. I'm in Pasadena."

I laughed. "You may find the reconciliation of these opposites a formidable task, even for the Determined Pollyanna," I said.

She laughed. "No, it's all right. I found an apartment. It's nice. I hung up my plants. It's only four blocks to the campus."
"Four light years might be better," I suggested.
"Oh," she said, "even you aren't that far away."
"I'll work on it," I promised.

She laughed. "So what are you doing?"
"Oh," I said, "I put on fifty pounds of mighty muscles, and went to work in the circus."

She laughed. "No really, what are you doing now?"
"I'm going to the movies in an hour or so," I said. "There's this guy here, his name is Hank Troy, he screens old silent films and accompanies them on the piano. Tonight he's doing Chaplin in The Gold Rush."
"Wow," she said.
"But that isn't for a while yet," I said. "What are you doing?"
"I haven't decided," she said. "I'm Weighing my Options."
"Aha," I said.
"There's some work I could do that's very interesting. But I'd have to work with shellfish toxin."

Alarm. "I advise against it," I said.
"Oh, it's safer than it sounds," she said. "But there's this other thing, I might go to South America, you know, up the Amazon."
"Really?" I thought about it. "I like it. You can go up the Amazon and get lost. Then I'll come after you."

An audible grimace.
"No, no," I said. "I'll bring a camera. I've always wanted to shoot a Lost City epic. This would be perfect. Though I'm not sure how I'll manage the escape by dirigible."
"Oh," she said. Dubious.
"I'll need a romantic lead in a flight jacket, a wicked Grand Vizier, and a degenerate tribe of savages descended from a lost Roman legion. Can you look like Fay Wray?"
"Is that necessary?" she asked.
"It's essential," I said.
"I don't know," she said. "But actually I like it here. I go to all the physics seminars. Last week I saw Murray."
"Really?" I laughed. "How is the Great Man?"
"Oh, he's cute, I like him. He talked about supergravity, he likes that. He's a dork, he reminds me of you."

I laughed.
"No, really, he's a dork, you know, just like you. He was wearing this bow tie. It was really cute."

I laughed harder.
"No really I like him."
"Not Feynman?"
"No, I don't like him. He's a lizard you know."
I laughed.
"No really. He's a lizard. I was at this seminar last week, and after it was over I was standing there talking to this friend of mine, we were having coffee, you know, and I looked over and he was staring at me."

Laughing very hard. "You can't say that I didn't warn you."
"Yeah, I know what you said, there aren't many women here. But I like Murray. He's a dork, you know, he's just like you."
"Oh," I said. "Murray's a dork I suppose. But he's also the smartest man in the world."

## "Really? You think so?"

"Oh yes," I said. "Wait a minute." I got up and walked into the kitchen and got a cup of coffee and came back. "All right," I said.

We talked about quantizing gravity. I thought I understood how it had to work algebraically, but didn't see how that related to the geometry.

Then we talked about music. "I've become one of those people," she said.
"Which people?"
> "You know. One of those people who thinks that Mozart Can Do No Wrong."

"Ah," I said. "Yes. I'm that way about Duke Ellington."
She laughed.

A pause. "So you're still there," she said.
"Yes."
"And I'm still here."
"Yes," I said. Wondering what reeked of gin. "Perhaps we should do something about that sometime."
"I think we did already," she said.
"Yes," I said. "I guess we did."
"Well," she said.
"Yes," I said.
"You can call me any time you want," she said. "Call collect. I'm Flush."
"All right," I said. I wrote down her number.
"Well," she said. "See you later."
"Later," I agreed. And hung up.

I got another cup of coffee, and stared out the window for a passage.
There is a scene at the end of The Gold Rush, after all the gags and pratfalls, in which the Tramp, improbably become a millionaire, meets his lost love Georgia again upon a steamer returning from Alaska; and, poor dweeb in love, ineffably embarrassed despite his fortune, indeed too embarrassed to admit to it, can say nothing, but only smile his shy smile. And as he is standing there smiling at her shyly, just for a moment the mask slips away, and you can see through the Tramp to Chaplin as he really was, the genius and the magic and the irresistible allure. The character is there upon the screen, but just for this moment someone else looks out through him. And then the mask slips back.

The Dork was a mask, I supposed. I wondered who she thought she'd seen behind it.

It still wasn't nine. I decided to go. I put the peacoat on, and stuck a pack of Camels in the pocket. Then I pulled the pack out again, and got a cigarette, and lit it, and put it back. Then I went out.

It was Fall again, and chilly. Had it been this cold, in Berkeley, in Pasadena? I couldn't remember now. I walked out through the student ghetto in the dark, down the sidewalk under the trees, hands in my pockets, singing to myself.

On the bridge over the pond a couple passed me going the other way. The girl was hanging onto the guy's arm with both hands, face turned up into his, animated, walking in big stomps. "You don't mean it," she was saying. An accent fell on every word.

Help me Rhonda. Help me get her out of my heart.
"Know thyself," my sweating ass. As if this did not entail knowing everything else as well.

## (cxxxiii)

My dear Fogelberg:
As for Life and Art, need I point out that Dante did not die in 1335 ?
As for the rest of it.......
What does it mean, when you regard life as a medieval romance? as a succession of encounters, a gallery of personalities - or generalized personalities.

It begins somewhere, and it ends somewhere, you fix the endpoints and interpolate between them the path of Least Action, but what is this Action? what ineffable Lagrangian has been integrated to define it? - Giants, enchantresses, fell knights and fair damsels in some measure of distress; troubadours and wandering knights tilting at windmills; castles in the air, castles in the very Ozone. - I imagine the whole rendered in Spenserian stanzas, set to music, filmed in Super-8. - And then abstract from that: as a set of postcards, a series of production stills; snapshots of Personae, like the cards of the Tarot. The Ensorceled Princess. The Sage. The Magician. The Enchantress. The Mad Lord in his mountain castle, drinking Tequila from a skull. The Scientist. The Troubadour. The Philosopher, the Comedian, the Fool. - Another exercise in the dialectic of the ridiculous and the sublime

So is this a journal, really? a novel in vignettes? a philosophical essay interrupted by fart jokes? a memoir reduced to monadology? the libretto for an opera? an unfilmed scenario?

A scrapbook, rather. Pictures from an Excursion.
So ist also dieses Buch eigentlich nur ein Album.

(cxxxiv)

## About the Garbonzo Players

Philippo. Dedicated follower of fashion. Likes popcorn. "Where's Genesis?" Wants to make a lot of money and.

Gonzago. Favorite color, pink on the inside. A Testes. I'll bet you knew he was a Testes.

Catrina. Family, musical. Hobbies, cookies, transcribing drunken meanderings.

Stefano. Born with the blues, but vaguely ashamed that he can spell them. Went to the school of hard cocks. Insistent that he does not fart so frequently nor so noxiously as Leonardo.

Greta. Belches. Wants to be a Sibyl when she grows up. Likes Annette Funicello, soft violins, and the Precambrian period. "But if you write sonnets to her she might get pregnant."

Maximilian, Count Dog. In 1935 he ran guns to Ethiopia. In 1936 he fought in Spain on the Loyalist side. "And got well paid for it on both occasions." The winning side would have paid him better. - Hobbies, gin.
D. Weymouth Fogelberg. An enema of the people. "A broken heart in every port," he smiles. Invariably, it was his.

Leonardo. Reads John Donne in the bathtub. Sensitive poetic type. "She wouldn't know a sensitive poetic type if he stuck a hand down her pants."

Johnny Cocktail appears courtesy of Mercury records.

Fan club address: P.O. Box 131
Encino, New Mexico
(Write now, and receive your free inflatable Catrina doll.)

We were going to tell you a lot about the Garbonzo Players, but this album says it all. Let's just say that they're the hottest new group to hit the charts in a long time, and the only way that they can go is up. A few comments from some people in the business:

Fonda Peters, The New Yorker: "The hottest new group to hit the charts in a long time. The only way that they can go is up."

Richard Feynman, The Antioch Review: "Huh?"
Hypocrite Lecteur, Rolling Stone: "A mortifying treatment of the perennial themes: poverty, flatulence, horniness, atrophy."

Ed Cherkinsky, The Midland Daily News: "One day as I was walking down the street I stopped at McDonald's. Suddenly everybody took their clothes off."

Samuel Johnson, The Life of Pope: "The most attractive of all ludicrous compositions."

Mark Lankton, Dirt Bike: "You knew the job was dangerous when you took it, Fred."

Lesley Gore, Physical Review Letters: "Nobody knows where my Johnny has gone."

And that's only the beginning for this hot new group that's hit the charts in a long time, if only they'd been up. So grab your board and go sidewalk surfin 'with -

The Garbonzo Players!

Your fault again,
Willy
(cxxxy)
The moving finger writes, and having writ
Moves on.
Nor even will your poverty of wit
Convince you that it ever gave a shit.
(cxxxvi)

Out of bed, I stand by the wallheater, warming my ass. Through the east window, a sky colored by the rising sun. It is like the sky in a picture-puzzle. But it is the real sky, and not the sky in a picture, and somehow this seems very strange.

That is why there should be a God: because the world is as it is, and not some other way.

## (cxxxvii)

You have no motivation, save by love.


This has (of course) been rather severely edited.
The characters who appear herein started out, at least, as real people, though what kind of people they were and who was fucking whom is hopefully impossible to tell from anything I have said about them.

Names have been changed, however, not to protect the innocent, but to amplify the ludicrous. - Though not always: it would have been impossible, for instance, to make up something sillier than "D. Weymouth Fogelberg", ${ }^{59}$ and accordingly I never tried. - "Leonardo Garbonzo" was adopted as a nom de plume because it sounded like the Maд magazine version of an Italian director; the rest followed.

Several years after the composition of this unsung masterpiece a topless doughnut shop did open in Fort Collins. From this we may conclude that Life needn't bother to imitate Art, because it generally beats it to publication.

[^41]$$
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The Adventures of Greta Garbonzo ${ }^{60}$
"Ah, Catrina! Could words but express my feelings at the sight of a familiar face, after so many sweating moons of weary wandering! Since first I donned my traveling shoes and set forth to seek my fortune, the way has been long and dark and hard and fraught with unending peril - Such Sturm! such Drang! such pitiable Angst! No sooner had I crossed my doorstep than a malign band of dwarves seized me as hostage and held me for a ransom. I escaped their clammy clutches, but then in the Dardanelles was taken by pirates. In the Andes I stumbled on a Lost City; an ancient prophesy had foretold the coming of a White Goddess from the North, and I was seized upon by the natives as she; made princess, doted on by a wise and ancient Grand Vizier, attended by a loyal guard of batmen, betrayed by a wicked High Priest who sought to twist the ancient truths to his own advantage, swallowed up by a rebellion of the High Priest's minions, cast then into the stinking dungeons, those reeking pits in the palace depths whence none had ever returned, nay, not in twice ten thousand years, there beset by nameless beasts and creatures of the nether void that ever shun the light; rescued then by a brave European adventurer who flung me onto his dirigible at the last moment as he seemed to be engulfed by a horde of the High Priest's bestial henchmen. In Colombia I scored ten kilos of cocaine, which with the aid of a desperate band of smugglers I brought into this country, making a fortune I then squandered at Monte Carlo, necessitating my becoming a topless baccarat dealer. There it was the Count found me, and made me his mistress; together we dwelt in his summer home upon the Riviera, until one night I awoke, uneasy, troubled to my very bowels

[^42]by foreboding, and found him humping a sheep in the sauna bath. Then I took the Orient Express to Istanbul, where I was kidnapped and sold in the market as a slave; long did I languish in the harem of Turim Bey, the infamous Buccaneer of Thebes. Nightly was I compelled to tell him a story, lest he cut my throat and feed me to the fishes; then one night I told him the one about Captain Bill and he laughed himself to death. Thus did I escape, joining an expedition to the Himalayas. Atop K2 my fellows were buried by an avalanche; I thought myself lost, and surely would have perished had I not been adopted by a tribe of Yeti, among whom I lived as one of their own until spring, when I bade them farewell, taking only a few of their genuine native handwoven blankets, which I was able to barter in Rangoon for passage on a clipper bound for Hatteras. Near Hawaii we were shipwrecked; for days I lay half-conscious, consumed by thirst and prey to hallucination, lashed to a spar broken loose from the wreck; then at last a band of surfers found me, brought me to the shore, and taught me the bass parts to "Pipeline", "Wipe Out", and "Help Me Rhonda". I think I might have lived forever there upon the beach, surfing by day, playing through a Twin Reverb by night, had not an agent from Capitol Records heard us one evening as we played in a small bistro by the shores of Waikiki. He offered us a contract we made haste to accept, as it represented more money than any of us had seen in all our short, sheltered lives. Ere any of us were aware we were living in a small mansion in North Hollywood, smoking hashish, snorting angeldust, bickering about the contents of our next album... . And then one day the lead guitarist showed up in glitter and our world collapsed. The drummer got a job doing the soundtrack for a porno movie. The lead singer split with a former bass player for the band that was formed by the guitar player and the drummer of the band that was started by the erstwhile organist for the band started by the former lead singer for the band that once backed the guitar player from the band formed around the tambourine player who once toured with the band that used to hang out in the East Village with the band that fissioned into either Eileen Dover and the Rhythm Kings and the

Yardbirds or Loggins and Messina and Currier and Ives, I forget which. And so you find me here. But still my heart burns within me: where, where is the brave troubadour who farted beneath my window of a soft summer night?"


[^0]:    ${ }^{1}$ Actually (in many respects I was then incredibly naive) he was for quite a while the single most important person in the administration: see the interview by Rachel Prud'homme ("Charles Newton", January 1983) in the Oral History Project of the California Institute of Technology Archives: [http://resolver.caltech.edu/CaltechOH:OH_Newton_C], from which I also glean the additional information that he was a student and a favorite of Thornton Wilder at Chicago.
    ${ }^{2}$ For reasons that should be obvious I think of the scene in Real Genius [Martha Coolidge, 1985] in which the despicable weasel Kent snitches out our heroes Chris and Mitch to the Evil Professor: "They're at a party. With girls."

[^1]:    ${ }^{3}$ Now remembered only as an inspiration for Stephen Stills, but at the time a novel manifestation of what would presently be styled Dissent on the part of The Young. ${ }^{4}$ Faust, Part Two, Act One, Scene Four: Mephistopheles gives Faust a key, which grows in his hand, and tells him it will guide him to the Mothers ("The Mothers! Mothers! it sounds so strange," says Faust); there he will find a tripod that he must touch with the key, after which it will follow him back and allow him to conjure up Helen of Troy and Paris for the amusement of the Emperor. - Mephistopheles warns Faust that he must brave solitude and desolation; of course Jack Kirby knew that too, and had a good time depicting it, (Bloom in The Western Canon reads this episode as an elaborate metaphor for masturbation, but - this may be the first time in my life I have said this - there's more to it than just the joke.)

[^2]:    ${ }^{5}$ The unreflecting vigor of Lee and Kirby should be contrasted, however, with the common screenwriting strategy, post-Lucas, of using Joseph Campbell as a universal crib, the Cliff's Notes for the fundamental myths. In this respect contemporary cinema is modernist, not postmodernist, and anything self-consciously "artistic" will be found buried under a dense layer of quotation and allusion.

[^3]:    ${ }^{6}$ Wittgenstein was bleaker: "Man könnte von einer Selbstbiographie sagen: dies schreibt ein Verdammter aus der Hölle."

[^4]:    ${ }^{7}$ For this reason it was always pretty easy to date the decade in which a building had been constructed - if the Seventies (or early Eighties), the doors never fit. Stoned hippies were not noted for their focus.

[^5]:    ${ }^{8}$ Though this was not the only place I applied for such a job: I interviewed seven times for janitorial positions with the local school district, for example, and each time was rejected more resoundingly than the last. - Parenthetically another pernicious myth about the search for employment is that persistence is rewarded because it makes a positive impression. This is nonsense. No matter how close you may think you came to getting hired at the first interview, if you are granted a second all they will remember is why they turned you down the first time; and if you keep showing up after that you become a stalker, regarded with horror and contempt: the guy who will not take the hint. - For a long time I had a framed letter from the Director of Personnel at the National Center for Atmospheric Research which explained that (I paraphrase) in view of the fact that they had already filled a dumpster with my applications, they would appreciate never hearing from me again. I prized this because it finally stated in print what no one had ever admitted aloud. - Alas, I lost it during an eviction.

[^6]:    ${ }^{9}$ See Matteo Motterlini (ed.), For and Against Methoд [Chicago/London: The University of Chicago Press, 1999], which contains the Feyerabend-Lakatos correspondence of 1968-1974.

[^7]:    ${ }^{10}$ A slight misquotation, but I remembered it this way for decades before I saw the film again.

[^8]:    ${ }^{11}$ He did in fact leave an unfinished manuscript in which he attempted to examine the history of the philosophy of nature, published after his death as Naturphilosophie [ed. Helmut Heit and Eric Oberheim, Frankfurt am Main: Suhrkampf Verlag, 2009]. But it fell short of this degree of pretentiousness by several orders of magnitude.
    ${ }^{12}$ His autobiography, Killing Time, was only published much later.

[^9]:    ${ }^{13}$ Writings from the Late Notebooks, ed. Rüdiger Bittner, translated by Kate Sturge. Cambridge: Cambridge University Press, 2003. - Notebook 34, April-June 1885.

[^10]:    ${ }^{14}$ Translated by Richard Howard.

[^11]:    ${ }^{16}$ An idea only realized much later, and it didn't turn out badly: see the graphic novel Logicomix [Apostolos Doxiadis and Christos Papadimitriou, 2009] which turned Russell's quest for secure foundations for mathematics into something like the exploits of a superhero. ${ }^{17}$ Worse fool I, at this point in my life I'd never heard of Chris Marker or La Jetée [1962].

[^12]:    ${ }^{18}$ John Passmore dropped this line en passant in One Hundred Years of Pbilosophy. - My first question, obviously, was whether Dizzy Dean had pitched for them.

[^13]:    ${ }^{19}$ Here the editor hastily stages an intervention.

[^14]:    ${ }^{20}$ Beyond Good and Evil [157]: "The thought of suicide is a powerful comfort: it helps one through many a dreadful night." [Kaufmann.]

[^15]:    ${ }^{21}$ Hard to explain this one. - The idea was (something like) to do what Wittgenstein had attempted for the foundations of logic, but for the foundations of physics.

[^16]:    ${ }^{22}$ For an analytical review of the concept of point in Euclid, Leibniz, and Grothendieck, among others, see Pierre Cartier, "A Mad Day's Work: From Grothendieck to Connes and Kontsevich; the Evolution of Concepts of Space and Symmetry" in Bulletin of the American Mathematical Society, Volume 38, Number 4, pp. 389-408 [2001].

[^17]:    ${ }^{23}$ Only later did it occur to me just how insulting it was that no one considered it an invasion of privacy to let a complete stranger into his or her office after hours; the presumption that the janitor must be a subhuman illiterate could hardly have been more obvious. - It later afforded me much amusement when I discovered that, in the Civil War, a black woman who cleaned the offices of Jefferson Davis was a Union spy, and was able to deliver invaluable intelligence to the North because the Confederate brain trust was constitutionally incapable of imagining that a servant could even read, let alone possess a photographic memory and memorize military documents. - She was subsequently inducted into the Military Intelligence Hall of Fame; see Michael S. Rosenwald, "A freed slave became a spy. Then she took down the Confederate White House." [The Washington Post, March 24, 2019.] Seriously, a couple of weeks emptying wastebaskets at Los Alamos would have sufficed for me to penetrate the secrets of the nuclear weapons establishment.

[^18]:    ${ }^{24}$ I remembered this, much later, when I read that the passengers of Flight 93 - who had, of course, ignored the airline mandate to turn everything off - figured out what was happening on $9 / 11$ from what they were hearing on their cell phones. And thus were able to act upon their knowledge. Live free or die.

[^19]:    Much later I discovered that, so far as anyone can determine, this first appeared in the 1888 edition of Camille Flammarion's L'Atmosphere; that it is not a woodcut but an engraving; that it may have been inspired by the woodcuts illustrating Sebastian Münster's Cosmographia [1544]; and that Flammarion may have made it himself. - And also that, though Flammarion was a prodigy of speculation about life, the universe, and everything, his intention here was simply to illustrate the naive fallacy of the solidity of the sky.

[^20]:    ${ }^{26}$ Manfred Eigen, "Selforganization of Matter and the Evolution of Biological Macromolecules"; Naturwissenschaften, 58 (1971), 10 October 465-523.
    ${ }^{27}$ Cf. William Goldman, Adventures in the Screen Trade.

[^21]:    ${ }^{28}$ What can I tell you? it can't all fit into one memoir.

[^22]:    ${ }^{29}$ I had to solve something like this later for a protein structure, but in that case there was additional information that made the problem meaningful: the protein in question consisted of two identical but complementary pieces, and I wanted to confirm that there was a Euclidean transformation superimposing one piece upon the other that ensured that corresponding atomic centers were very close together. To find the mapping that minimized the sum of the squares of the distances was a variational problem, a simple generalization of the least-squares method, and it had a well-defined solution which, to my satisfaction, fit the data very snugly. ${ }^{30}$ When I later considered the problem in the context of image processing I tried defining similarity in terms of a minimum morph relative to a suitably-generated group of diffeomorphisms, which ironically was not dissimilar to another idea of Ulam's he had worked out with Von Neumann. - This was, in fact, the right idea. The recent solution of facial

[^23]:    ${ }^{32}$ Cf. Tom Swift and the Cosmic Astronauts [1960].

[^24]:    ${ }^{33}$ More or less as one can always represent a periodic function with a Fourier series.
    ${ }^{34}$ P. Jordan, J. von Neumann, E.P. Wigner, "On an Algebraic Generalization of the Quantum Mechanical Formalism" Annals of Mathematics 35, 29-64 (1934).

[^25]:    ${ }^{35}$ Garrett Birkhoff and John Von Neumann, "The Logic of Quantum Mechanics" Annals of Mathematics 37, No. 4 (Oct., 1936), pp. 823-843.
    ${ }^{36}$ Lectures of 1935-37 reprinted as Continuous Geometry [Princeton: Princeton University Press, 1960].
    ${ }^{37}$ Lectures of 1933-35 on Operator Theory reprinted as Functional Operators (Vols. I and II) [Princeton: Princeton University Press, 1950].
    ${ }^{38}$ Rainier Maria Rilke, The Notebooks of Malte Laurids Brigge; translated by Stephen Mitchell. New York: Vintage, 1985.]

[^26]:    ${ }^{39}$ This actually happened.

[^27]:    ${ }^{40}$ These are all, of course, real songs, though I have no way to transcribe them here.

[^28]:    ${ }^{41}$ Later I realize this is just another application of the principle of simulated annealing.

[^29]:    ${ }^{42}$ Leibniz [letter to John Bernoulli 11/18/1698]: "It was my opinion long before Newton's work, that gravity is inversely proportional to the square of the distance, a theory at which I arrived not merely by a posteriori processes but also by an a priori reason, which I am surprised that he did not notice. Leaving out of consideration the physical basis of gravity, namely, and remaining within mathematical concepts, I consider gravity as an attraction caused by certain radii or attractive lines going out from an attracting center; so, like the density of illumination in rays of light, the density of radiation in gravitational attraction will

[^30]:    ${ }^{43}$ The sharpest statement of this is that any sphere can be dissected into five pieces which can be reassembled into two spheres of the same size. This follows from the axiom of choice. See Karl Stromberg, "The Banach-Tarski Paradox," American Mathematical Monthly, March 1979, pp. 151-161.

[^31]:    ${ }^{44}$ See "On the Nature of Quantum Geometry," in Magic Without Magic, ed. J. Klauder, Freeman, San Francisco, 1972, pp. 333-354.
    ${ }^{45}$ Meaning "mathematical analysis", i.e. the calculus.

[^32]:    ${ }^{47}$ H.D.F. Kitto, The Greeks. [London: Penguin, 1951]

[^33]:    ${ }^{48}$ Now that it has become possible, it would be interesting to subject proofs of the principal results of Euclidean geometry from Hilbert's axioms to machine verification. Claims of complete consistency and completeness must always be viewed with suspicion.
    ${ }^{49}$ Though the idea, of course, of comparing the distances between two pairs of points was a familiar corollary of the concept of congruence.

[^34]:    ${ }^{50}$ "Real analysis" in this context, again, refers to the calculus and its baroque variations.
    ${ }^{51}$ This isn't true either, of course, there are many possible starting-points. But the naive idea of integration, the problem as it presented itself to Newton and Leibniz, is that of computing the area under a curve defined by the graph of a function.

[^35]:    ${ }^{52}$ I.e. presupposition presupposes essence. But extremism in the pursuit of liberty is no vice, and circularity in the dismissal of wrongheaded triviality is no great lapse from virtue either.

[^36]:    ${ }^{53}$ Rachel Weiss in the role of Hypatia performs this experiment in Agora [Alejandro Amenábar, 2009]; probably not historically accurate, but certainly historically possible. Whether even Galileo performed the experiment is unimportant, however, since this like so much else falls under the heading of things that should have always been obvious. ${ }^{54}$ Abraham Pais in his scientific biography of Einstein (Subtle is the Lord) lays great emphasis however on the fact that the theory of relativity is about kinematics, not dynamics; something not fully appreciated even by many early expositors of the theory, and never really understood by either Lorentz or Poincaré, who had stated many of its conclusions without grasping their meaning.

[^37]:    ${ }^{55}$ Translated by W. Perrett and G.B. Jeffrey as "Space and Time" in The Principle of Relativity: A Collection of Original Memoirs on the Special and General Theory of Relativity. London: Methuen and Company, 1923.

[^38]:    ${ }^{56 \text { "If }}$ Beatrice is more beautiful than any other woman in literature or in history," says Bloom, "Dante is celebrating his own power of representation." ["The strangeness of Dante: Ulysses and Beatrice."]

[^39]:    ${ }^{57}$ With apologies to ZZ Top.

[^40]:    ${ }^{58}$ Transl. Peter Bondanella.

[^41]:    ${ }^{59}$ This is not the rock star, whom I have never met.

[^42]:    ${ }^{60}$ Its shortcomings notwithstanding, I reproduce this exactly, for the most part because I am still transfixed by the memory of its composition, an episode which - for whatever reason filled me with terror. - Why was I afraid of my own imagination? Here was the perfection of the pathology of Angst.

