RPI

I left Stiers' soon after dawn one morning in early September, 1954, carrying as much luggage as I possibly could. The idea was to hitchhike all the way to Renssealaer Polytechnic Institute (RPI), which meant half-way across Pennsylvania, then across a piece of New York State to Kingston, N.Y., then north along the Hudson River. The Code demanded nothing less. The suitcase and bags were as heavy as I could make them. It was important that I could just barely move them from the roadside into cars or trucks and then back out at the end of the ride. People would see how loaded down I was and be more inclined to give me a lift. This kind of struggle with the trivialities of ordinary life was part of my discipline to greatness. I remember standing in the nondescript ugliness of Kingston, surrounded by my bags and suitcases, thinking, *No one can live through misery like this.*

RPI was a collection of dull gray buildings on the side of a hill. Below was the depressing town of Troy, N.Y., and the polluted Hudson River. I wondered why anyone would build a college or university — even an engineering school — in a God-forsaken place like this. ("Troy...was known in the 19th century for the manufacture of detachable collars and also led the nation at one point in iron and steel production."[1]) One evening a few days after arriving in the city, I was standing on the road that ran past the upper end of the school, looking at some of the school buildings, and I thought of my father. This was, after all, the kind of place he would have been at home in. For me, it was the end of the world: the red, setting sun was the burning of the cities all along the horizon; the gray sky was the smoke spreading over the earth. I thought of the end-of-the-world music that always meant so much to me: the parts with chimes in Ravel's *Mother Goose Suite*, Bizet's *Jeux d'Enfants*, the carillon in the *L'Arlésienne Suite No. 1*.

Some of the freshmen were initially put up in Quonset huts in a remote corner of the campus. These corrugated metal sheds had been built during World War II, I think the story was. Or maybe they had been built to accommodate the influx of students that resulted from the GI Bill. In any case, these shabby quarters confirmed our fears. "This is what they think of is. We are here to suffer."

In a few weeks, we were transferred to new, cement-block dorms which had been built in a large vacant lot in the flat land at the upper end of the school. My first roommate was a sweet-natured Southern guy with an extraordinary case of acne. It was hard to tell just how bad the scarring was, since his skin was always covered with Clearasil or some other cream, but the ugly purple dots and splotches were always there — unlike some of us, he never seemed to have good days. But he always had a ready smile, was always ready to agree with my pronouncements (mostly complaints). He once described someone, with a laugh, as having "little beady eyes looking out"; I forget what we were talking about, but I think he was embellishing something I had said. I always felt masculine around him. I thought to myself: he's far worse off than you: think of it: here's a guy who at eighteen is already condemned to a life of loneliness. No girl will ever look twice at him. I understood completely his eagerness to please. You have to be liked by *some*one.

Somehow or other, word that I played jazz trumpet reached the right ears. I was invited to join a group called The Saints, which turned out to be much better than anything we had had in high school. A few weeks after I joined, the bassist, Len Barnstone, and I decided to share a room, so I left the Southern guy. He greeted that news, too, with a cheerful smile.

---

1. Roberts, Sam, "Upstate New York Suffers a 'Bright Flight' of Young Adults, Census Shows", *The New York Times*, June 13, 2006, p. A20

Our room was a corner room on the second floor of one of the new dorms. These dorms were situated at the foot of the enormously wide stairs leading up to the dining room. All the dorms were built of cement block and painted an antiseptic cream-white. The landscaping was just bare dirt. The featureless buildings and stairs and surrounding muddy ground were a university administrator's dream. They looked like the apartments where K. lived in Orson Welles' film, *The Trial*.

All the rooms were the same: you entered and walked past a couple of feet of cabinet wall on either side. These housed the chest of drawers, and closet, one on the left, one on the right, for each of the two student residents. Straight ahead, opposite the door, were two large aluminum windows. Below each window, a desk. Everything smelled new. All the wood was the same blond color. Above the chest of drawers was a flat surface where you could put hairbrushes and deodorant and toothbrushes and tube of Clearasil. Far in the back was a mirror. That much I thought was a good idea, since now your roomate could then never tell if you were looking at your acne or just brushing your hair or busying yourself with lining up your grooming gear.

At that time, I had two identical hairbrushes, mere dark wooden rectangular blocks with rounded corners, but no handles, and with stiff white bristles. You were supposed to hold one in each hand and brush the hair on each side of your head simultaneously. This was a minor fad among men at the time. A young man would often be given a pair of these brushes for his birthday. I used only one, much of the time, trying to get the brush cut in the front perfect, the hair smoothed back along the sides. But it felt more masculine using the two, I think because I had seen a character in the movies brush his hair this way. And so I would endlessly brush the hair at the sides of my head back, then brush the hair on top back, but then sort of push it forward a little with the bristles, so it wouldn't lie too flat. When Barnstone wasn't there I spent many minutes staring in horror at my face, trying to find an angle at which it didn't look so bad; endlessly trying to come up with an argument why a girl should ever want to go out with me, doing my utmost to resist squeezing the pus out. The sulfur stink of the Clearasil was always with me, made stronger by sweat and body smell.

Barnstone too had pimples, but nowhere near as bad as those of my previous roommate or me. Furthermore he had a darker skin: I thought of him as being blessed with being permanently tan. He had a mole on one cheek which somehow also made the pimples recede into the background.

He spoke with a mild lisp at times. Although he played string bass and later tuba in the band, he liked to practice trombone in the room. One evening, exhausted from studying, I found that I could even sleep through his practicing, and so it never bothered me.

Barnstone — I always referred to him by his last name except when he was around, when I called him Len — was good at calculus: much better than I was. He had a habit of sweeping eraser crumbs off the page as he was thinking. When the crumbs were all gone, he would still brush the heel of his hand compulsively across the sheet of notepaper as he thought. Often, if I had an idea on a hard problem, and was writing and drawing diagrams, he would suddenly grab the pencil out of my hand to write down a better approach. Sometimes it became a regular tug of war.

He: "No, wait, look!" (grabbing)

I: "No, wait, let me finish!"

He: (still grabbing) "No, I've got it, I've got it!"

I: "Wait! Wait! Just let me finish!"

He was a damn good bass player — I think self-taught. He had played a number of different instruments in high-school band. I can see him now with that goofy smile on his face, standing in

the back of the school orchestra holding his bass, obviously pleased as punch to be there. In our group, he always had an intense, concentrated, eager look on his face as he played. He had long, slim, fingers that seemed very flexible and even though they seemed unusually flat at the ends, they showed no obvious calluses from pressing the heavy strings. But several times he showed me that they were really there.

He was from Portland, Maine. He said his family had changed their name from Bernstein to Barnstone to make it sound less Jewish. He had no use for the new state of Israel, saying that all they were doing was creating another Jewish ghetto. He joined Phi Sigma Delta, a Jewish fraternity. One of his fraternity brothers was Steve Harris, who became a Stanford professor, and whom I found, many years later, I had gone to White Plains High with. Across the hall was a guy from New York City named Windy, the nickname having come about as a more appropriate substitute for his actual first name, which was "Wendell". Amazingly, he had almost no New York accent, and that made me like him right away. He too was good at calculus. He had a quiet, subdued, middle-aged manner about him. I kept imagining him standing in a living room with a briarwood pipe in his hand. And yet I think he was the one on our end of the corridor who somehow got hold of an underground record then making the rounds, a collection of raunchy songs sung by the black comedian Redd Foxx, with titles and lyrics like "Baby, Let Me Bang Your Box". The school had a good reputation[1]; therefore we accepted what was obvious, namely, that the school's principal duty was to separate the winners (the "engineering material") from the losers. At the freshman indoctrination, the speaker said, "Take a look on both sides of you: one of you won't be here in four years." I had two reactions: first, anger that someone should say such a thing to a group of nervous students just beginning their college careers, and second, perplexity as to exactly what that meant: if, say, the person on your left was going to fail or drop out, then what about the person on *his* left? The speaker didn't say, "...except if you are one of the ones who is not going to be here in four years, then it is possible that *both* of the students on each side of you will be here". If it were actually known who was going to survive the four years and who wasn't, and this were revealed, say, on a slip of paper handed to each student by name before the assembly began, then in order for the speaker's statement to be true, it would be necessary to seat the students in accordance with the verdict on each slip of paper.

I consumed inordinate amounts of time, as I trudged around campus from one scheduled indoctrination event to the next, trying to understand the meaning of the speaker's statement. I never got beyond the question of how the statement applied to a student who was among those who wasn't, in fact, going to be there in four years, as opposed to a student who was. But now, half a century later, with a little more mathematics under my belt, I think my question was a good one. For example, suppose it just so happened that in one row, or in all rows!, the student on the left (seat 1) was one that wasn't going to be there in four years. He is the student on the left of the student in seat 2, and so the student on the right of the student in seat 2, namely, the student in seat 3, would be there in four years. But then, since the student on the left of the student in seat 3 would be there in four years, that meant that the student on his right, namely, the one in seat 4, would not be.

The pattern then repeats, and the reader can prove for him- or herself that the drop-out rate over four years would be one-third, not one-half as suggested by the speaker's statement. But we have ignored students who were not going to be there in four years because it seems odd to say,

---

1. A Swiss engineer who visited our house over Christmas, or during the summer, knew the school well, but he pronounced the name "Renn*ess*ler".

"You who are not going to be here in four years: Take a look on both sides of you: one of you won't be here in four years." If we take these students into account, we get a drop-out rate of one-half.

It would have been so much clearer if the speaker had said "Half of you will flunk out or drop out before graduation." The fact he didn't say that must, I assumed, be because there was a deeper, more painful, more *engineering* way that students were dropped by the wayside.

But it wasn't only the threats during freshman indoctrination that I didn't understand. There was also the school cheer, used at football games:

"*e* to the *x,* dee *y* dee *x*
e to the *x* dee *x*..."

Even in my first semester of calculus, I knew where the words came from, but they had various possible meanings when you merely heard them spoken (or shouted) aloud and didn't see them written down. *e* referred to the base of the natural logarithms, 2.71828..., a very popular number in calculus, and in other branches of mathematics. So far so good. *e to the x* meant *e raised to the x power*, i.e., e^x, a common function in calculus. OK. *dee y* and *dee x* referred to the *derivative of y* (i.e., *dy*, an arbitrarily small change in *y*) and the *derivative of x* (i.e., *dx,* an arbitrarily small change in *x*). But normally when the two were used together it was in the form *dy*/*dx* (meaning, the *change in y* relative to the *change in x*) and pronounced *dee y* <u>*over*</u> *dee x*. *dy* and *dx* could occur independently in an equation, but then they were separated, as in, say,

$xdy - 2ydx = (x - 2)e^x dx$ [1].

But then the first few lines of the cheer would have been significantly more complicated metrically — possibly even beyond the reach of the cheerleaders:

"*x* dee *y* minus 2 *y* dee *x*
equals
quantity *x* minus 2 end quantity *e* to the *x* dee *x*...!
(Rah!)

In any case, the possibilities, in the existing cheer, were, for the first line,

$e^{x\,(dy)(dx)}$ (a possible term in calculus, I supposed, but not anything we saw in the first-year course);
$e^{x\,(dy)}\,dx$, (likewise possible, but nothing we saw in the first-year course);
$e^x\,(dy)\,dx$, (again possible, but nothing I could recall seeing in the course).
Fortunately, there was only one reasonable possibility for the second line, namely:
$e^x\,dx$ (which we did see in the course, and which occurs in the above equation).

So I puzzled over the first two lines of the school's football cheer as I trudged up and down the stone steps of campus, thinking, in anguish, "If you can't even understand the school's *football cheer*, for God's sake, what possible hope can there be for you?"

---

1. Ayres, Jr., Frank, *Schaum's Outline of Theory and Problems of Differential Equations*, McGraw-Hill Book Company, N.Y., 1952, p. 39, Exercise 19 (*d*).

The homework never stopped coming and I doubt if even the good students could actually have found enough hours in the day to study the texts the way the professors expected, then do all the assigned problems. True, there were always a few kids playing cards somewhere in the evening, but by no means could you say they had nothing better to do. You were always falling behind, always trying to fake your way through the classes, hoping not to be called on, desperately wondering how you could possibly cram all they were throwing at you into your brain for the next exam, and the one after that, and the one after that.

Once in a while you would see the letters "IHTFP" scrawled on a wall or on the sidewalk. They stood for "I Hate This Fucking Place". Kids would sometimes shout the words on the way to or from the dining hall. It was done without the slightest hope that it would change anything.

But even the toiling undergraduates had enough awareness of their surroundings to recognize the ugliness of the city in which they were forced to live. There was a saying: "Albany is the asshole of the universe and Troy is seven miles up." To this day, I think of Albany as a citadel of mediocrity in the nowhere of upper New York state, a city full of dull, plodding, opportunistic, corrupt politicians.

Sometimes we had reason to believe the school was really out to finish us off. For example, dozens, perhaps several hundred of us, suddenly came down with severe stomach pains after one of the dining hall meals. Along with many others, I was taken to a ward in a local hospital, where an aloof doctor moved among the beds, asked each of us a few questions, then gave us a pill and dismissed our groans as though he suspected we were all faking or as though he had seen it all before and far worse in the battlefields of some remote foreign war. Rumor had it that the cause of the poisoning was that one of the black cooks had leaned over a kettle of bean soup and allowed a pack of Pall Malls to fall in. But I couldn't believe that mere tobacco could cause such excrutiating pains as we experienced.

Next to our dorm was the brain fraternity. The story among the students was that they had all the exams in all the courses going back for years, stored in filing cabinets. All they did was study. For some reason, perhaps because I was inside the place once, I always visualized it as a big hall like that in a prison, a balcony around the second tier, students hunched over desks everywhere just studying, relentlessly, day-in, day-out. The brothers in that fraternity never had much to do with anyone else. Across the street was Delta Kappa Epsilon, the Dekes, a national fraternity one house of which, it is said, was the model for the fraternity in the movie *Animal House*. Here the culture was just the opposite, the members being known for their extraordinary ability to hold alcohol. They had loud parties. I think we played a job there once. The floors were soaked with beer. Hoarse football types rambled around in ragged sweat shirts and shorts showing thick, hairy legs, grunting, sweating, one arm hanging around the shoulder of their long-suffering dates.

The Courses

Calculus

First-year calculus was taught by Professor — , a quiet, methodical, white-haired man with rimless glasses who each day gave a lecture and worked examples on the board and made it all look as inevitable as music. In working the homework problems, I tried to imitate the slow, careful way he wrote equations and made drawings on the board, believing that this would help me get the right answer. We had to walk *down* several steps to the classroom: it was below the level of the main floor. We used Thomas's *Elements of Calculus and Analytic Geometry*, which was still in print in the 1990s and still being used in some college courses. I remembered it as hard, dry, merciless, but when I came upon it again — I have a copy of the 1981 edition on my bookshelf —

I found it quite friendly and straightforward, so either they have improved it over the years, or my mathematical maturity has increased more than I thought.

Not one of all those pages of calculus homework I submitted remains. All the original textbooks I used throughout my college years are likewise gone, not the least reason being that we sold them at the end of each semester out of revulsion for the agony they had put us through.

The fact that the professor had white hair and was teaching the sacred scripture of my father made me spend a fair amount of effort in telling myself, over and over, that I had to suppress my neurotic need to see him as a reincarnation of my father. My father was dead, lots of old men have white hair, probably lots who teach calculus. But I couldn't keep back the feeling that God or the mysterious workings of the universe had placed an incarnation of my father at the front of the first calculus course I was to take.

By dint of sheer effort, boundless fear, and calling on resources I didn't even have, I was able to get B's and A's in the course, but this was in no way a reflection of my understanding of the subject. Barnstone and Windy were always much faster at getting the hard problems, and I hated myself for it.

The major difficulty was that I was utterly baffled by the infinitesimal. This was — so we were told (on the one or two occasions when someone hesitantly asked) — "a number smaller than any number you can think of, yet not zero". But we did (or at least I did) try to think of such numbers! — every day, in class and as we struggled with our homework. This was my father's scripture and I didn't understand it! I became obsessed with trying to understand such a number. I imagined an infinitely long row of playing cards retreating into the distance. On each one was a fraction smaller than the one on the previous card. But no matter how far down that row I might travel, if I selected a card, the one thing I could be certain of was that that was not an infinitesimal. The infinitesimal had to be smaller. Was there just one infinitesimal? If not, how many? Was there a largest one? A smallest one? What did you have to do to get to the state in which you understood such things? I also wanted to know the *arithmetic* rules for infinitesimals. If these were numbers, then how come no one spelled out the rules? Could you do everything with them you could with ordinary numbers? I gathered you could add, subtract, multiply, and divide them, from seeing them in equations like the one quoted in the previous subsection. But could you take the square root of *dx*? I had never come across such a thing. Why? There was an expression

$$\frac{\mathrm{d}^2 y}{\mathrm{d}x^2}$$

which meant

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\frac{\mathrm{d}y}{\mathrm{d}x}\right)$$

i.e., "the derivative, with respect to *x*, of the quantity: the derivative of *y* with respect to *x*". But the dx^2 in the denominator of the first expression did not mean "the derivative of the quantity x^2" . So my question was, if someone covered up everything on a sheet of paper except dx^2, was there any way of telling if this was the term in the denominator or if it just meant the constant *d* times x^2? The arithmetical rules for derivatives must be different from those for ordinary numbers. For one thing, if *dx* was an arbitrarily small quantity, then so was any finite sum of *dx*'s. Therefore (*dx*

+ *dx* + ... + *dx*) (10 *dx*'s, say) was the same as 1 *dx* if I chose *dx* in the first case to be 1/10 what it was in the second case. Could you multiply through an equation by *dx*? If so, why didn't anyone do it? What was the value of something like e^{dx}? (Here, *e* is as explained in the previous subsection.)

Another problem was the difference between Δy, Δx ("delta *y*, delta *x*") and *dy*, *dx*. We were told that Δy, Δx stood for fixed, small quantities. Then we were told that, if we let Δy, Δx become arbitrarily small, we should replace them with *dy*, *dx*. I was utterly baffled by this. At what point did Δy, Δx suddenly become *dy*, *dx*? How small did Δy and Δx have to be before the symbols switched over to *dy*, *dx*? I began imagining an infinity of universes. In each universe, students and teacher worked with different fixed values for Δy, Δx. For example, in Universe A, Δx was always, say, 0.00001, and in Universe B Δx was always, say, .000000000043. I had some vague idea that in these cases, there would be small errors in the equations.

As I walked around campus, I tried to imagine an arbitrarily small number that was not zero — an infinitesimal. It was utterly hopeless. And yet it was the very foundation of the subject that in turn was the foundation of engineering and physics.

I assumed the whole thing was like writing prose: there were some things you just didn't do, and you simply knew that it was in bad taste to do them. You never bothered to try to make these things explicit. If you needed to have them made explicit, then that meant you had no business writing prose.

I hated the way the professors ranked ability to solve problems rapidly above understanding the concept of the infinitesimal. Sometimes I felt like standing up in class and shouting, "We're not going any farther — we're not doing one more goddamn problem — until I understand the concept of the infinitesimal!"

I didn't know until some 20 years later that others had been bothered by the same questions as I had been, and that in fact Bishop Berkeley, in 1734, had written a devastating essay titled, *The Analyst, Or a Discourse Addressed to an Infidel Mathematician*, in which he exposed the lack of rigor in the concept. Mathematicians accepted his challenge, but were unable to come up with satisfactory answers until some 150 years after Newton and Leibniz invented the concept in the late 1600s. These answers were based on a rigorous definition of the concept of limit. Then, in the mid 1980s, I found out that, during the period of my own first struggles, an Ameican mathematician, Abraham Robinson, was in the process of developing another answer to the question of what an infinitesimal is: in fact, he was at last able to show that there were numbers that fit the informal description that we had been handed in class. But to do this, he had to use some of the most powerful machinery of modern mathematical logic.

And in November, 2000, I read, in a book that had been written shortly before I entered RPI, "At bottom, the infinitesimal is, of course, one of the mustiest of all skeletons in the mathematical cupboard."[1] The author was one of the 20th century's greatest thinkers on mathematical logic.

I knew nothing of this in 1954-55, and considered my being stopped in my tracks by this dilemma further evidence of my lack of intelligence. Worst of all, I was absolutely certain that I was the only student who was bothered by these questions[2].

---

1. Russell, Bertrand, *Wisdom of the West*, Crescent Books, Inc., London, p. 280.

2. I thought about the questions off and on throughout my life, and then, at the age of 76, after a spring semester of tutoring a young woman in first semester calculus, I discovered an answer to all my questions — about the infinitesimal, about the meaning of *dx* and d*y*, and about the difference between *dy/dx* and $\Delta y/\Delta x$. Details are given in the sub-section, "I Find An Answer to the Calculus Questions That Tormented Me in My Youth", in the next-to-last file of this autobiography.

The Jewish kids just knocked out the problems. Day after day. No questions asked. Do the homework, get A's on the exams, and play cards after dinner once in a while. I envied these students — their brilliance, their ability to understand intuitively the nature of the infinitesimal, their freedom from fear.

My only mathematical idea apart from questions about the infinitesimal was: if π was this exceptional number which was the ratio of the circumference of a circle to the diameter, then why not make it be like 1, and see what happens then? In other words, why not do all of mathematics with π as the unit? I discussed it with Barnstone, who showed no interest. But I felt we were getting only one view of the subject by making the integer 1 always be the starting point.

Since we were all desperate for grades, the question of partial credit on exams was always foremost in our minds. I think it was at RPI that a professor, either in a science or a math course, responded that there should be no such thing as partial credit. "If you're a brain surgeon you can't rely on partial credit," he said. A number of students raised their hands in protest. I doubted if I bothered, since I considered the example utterly stupid, not the least reason being that science and mathematics were not brain surgery. I thought it a typical professor's response, and I hated him from then on.

Engineering Drawing

I hated all my subjects, but I hated Engineering Drawing the most. Several times a week we gathered in this vast sea of drawing tables, listened to the instructor say a few words about the day's assignment, then set to work doing it. I could hardly make out his features, he was that far away. We all came to class with our drawing board (I always liked the smell of the wood), T-square, tracing paper, linen paper, various erasers, a soft bag filled with a powder of some kind that was used to soak up the ink and to clean pencil drawings after they were finished, our special drawing pencils, which you unscrewed the end of to put in a different hardness of lead, our sandpaper boards, which looked like short paint-stirring sticks, and had sandpaper on one side, so that you could sharpen the lead in the drawing pencil by rubbing it back and forth, and, finally, the various clear plastic templates containing common curves (circles, ellipses, and angles): you put the template where you wanted the curve to go on the drawing, then stuck the pencil through the opening and traced along the plastic edge of the curve . The pencils and small rulers and whatnot we carried in a black box covered with artificial leather. It was unthinkable to come without all this equipment, because then you wouldn't be able to do anything.

The emphasis was entirely on making the drawings as nearly perfect as we could. The pencil lines had to be even, hard, black, with no feathers or smudges. The construction lines that you used to help draw the final lines had to be much fainter, drawn with a harder pencil; the center lines had to consist of a long segment, then short segment that was almost a dot, then a long segment... There was a prescribed line thickness and lead hardness for each type of line. God knows how many hours we spent trying to print letters the required, engineering way, with the stems vertical, and all the loops, as in "P" and "R", horizontally elongated, so that the lettering looked squat.

Worst of all were the ink drawings, which had to be done on linen, one side of which was glossy. We used pens that were, in effect, little pincers between which the drop of ink was suspended. As you drew the pen across the paper, the ink bled out to form a line. The distance between the pincers was adjustable, so that the thickness of the line could be varied. The governing rule was clear and without exception: if, after hours of work, you allowed a drop of ink to fall

on the drawing, you did the entire drawing all over again. We lived in wretched fear of that happening. Small drops could be scraped away with a razor blade, but if you tried that with a large blob of ink, the change in the surface of the linen caused by the razor was too noticeable for the drawing to be accepted.

That first semester, we mainly drew steel blocks of various kinds, each with one or two holes. Usually the corners of the blocks were rounded. We drew orthographic (head on) views (front, top, and side) and isometric views, which had a 3-D look.

Some students — the envied few — had been able to work at drafting jobs in the summer. They raced through the assignments, got them right, and had time to play cards in the evenings. The rest of us struggled with learning everything from scratch. We felt (not for the first time) that the game was fixed from the start. Some students had it easy, the vast majority had it brutally hard.

Physics

I cannot remember a single physics lecture, nor any professor. I think the text we used was Sears and Zemansky's, then a much thinner book than it eventually became! But I remember the so-called lab sessions, and the problem sessions, where we went over the homework assignments. The labs were run by an overweight, half-blind guy who spoke with a lisp. I didn't dislike him. In fact, I thought that only in the chamber of horrors that was an engineering school would there be a place for a freak like this — a man who, in the outside world, would have no function whatever, but because he was good at numbers, he had a place here. We laughed at him behind his back, but the truth is, most of us were at a loss to know how to go about asking questions of a man who couldn't really see the apparatus you were talking about.

During my freshman year I read Whitehead's *Science and the Modern World*, and, filled with inspiration, I decided not to cheat any more in laboratory experiments as I and many of my fellow students normally did. (We knew what the results were supposed to be, we knew that the professors wanted to see those results or something very close to them, so we worked backwards, generating our data by calculation and then adjusting the experimental apparatus until it yielded something close to the desired values.) What Carl Sagan said about his high school science courses applied here in the first year of college:

> "I wish I could tell you about inspirational teachers in science from my elementary or junior high or high school days. But as I think back on it, there were none. There was rote memorization about the Periodic Table of the elements, levers and inclined planes, green plant photosynthesis, and the difference between anthracite and bituminous coal. But there was no soaring sense of wonder, no hint of an evolutionary perspective, and nothing about mistaken ideas that everyone had once believed. In high school laboratory courses, there was an answer we were supposed to get. We were marked off if we didn't get it. There was no encouragement to pursue our own interests or hunches or conceptual mistakes." — Sagan, Carl, *The Demon-Haunted World*, Random House, N.Y., 1995, p. *xiii*.

I chose as my starting point an experiment having to do with measuring the acceleration of gravity. This was to be done by measuring the period (time for one complete back and forth motion) of a pendulum. Sparks emerged at regular intervals from the pendulum bob we were to use, making holes in a piece of white paper below the bob. We were to measure the distance between the holes and, from these distances, compute the speed of the bob. I took the data with

scrupulous honesty and got for a result something around 860 cm/sec/sec instead of the correct 980 cm/sec/sec. I handed in my report exactly as it stood and got a D. When I asked why I was given the low grade, the professor replied that the result was too much in error. The grade stood.

People to whom I have related this story, in particular engineers, have sometimes remarked that I should have compared my results with other students' and tried to account for the difference. That is a valid criticism, but such open comparing of results was emphatically not a normal part of the lab protocol. So my contempt for engineering only increased.

In the spring, we had an incomprehensible Asian as the teaching assistant for our physics problem session. We laughed openly at him — that is how hopeless it was to try to understand what he was saying.

All this you were expected to put up with. It was part of RPI's test of you to see if you had what it took to be a successful engineer.

But the question about physics that bothered me more than any other was this: if, as we were frequently required to demonstrate, it is possible to derive, by purely mathematical reasoning, various physical formulas, why couldn't we derive the whole of physics? Why did we need to perform any lab experiments at all? This question drove me nearly crazy at times. My eventual answer, as the reader will not be surprised to learn, was that if you are engineering material, you know the answer to this question. In fact you don't even ask it.

"Mankind Can Never Travel to the Moon"

As my mother never allowed me to forget, my grandfather was an astronomer who was famous in Switzerland. Each year he was given the lofty responsibility of "computing the calendar". What that meant I do not know to this day. Even then I wondered why he didn't just get a calendar from his insurance company. But he was the only person I knew that I could write to about the one astronomical thing that interested me, namely, going to the moon, and I am fairly sure that it was while I was at RPI that I wrote him about this. He replied in a long letter, in German, which I was able to read well enough to understand that he thought going to the moon was impossible. First and foremost, he said, the moon was 240,000 miles away from us, an impossible distance for man to travel. Then he presented arguments about the impossibility of building the necessary rocket ship and escaping the earth's gravity. My faith wasn't shaken, but I was furious at the fact that the world put in a position of authority a man with so little imagination — so little interest in doing great things. My mother told me several times, beginning, I think when we were visiting him in 1949, that he was convinced that Einstein was wrong, and, apparently, had told him so on the one occasion when they met. Whenever my mother told me the story, she looked rather proud to be the daughter of a man who not only was admired and respected, but who also saw what the easily-influenced trend-followers didn't see, or were afraid to admit. Of course, she hadn't the vaguest idea of what Einstein's ideas were to begin with or why the world thought they were right, much less what might constitute a valid argument against them.

For a while I tried to find a way to like astronomy, since it was a subject with the family stamp of approval and at the same time was different from engineering. It dealt with the same things as science fiction, so I felt I *should* like it. But I couldn't overcome my distaste for the idea of *taking data* all my life, of being nothing more than a meter reader, just to find precisely where some star or galaxy was. I was contemptuous of the big deal that was made over this — over the celestial charts. Who cared? I wanted a three-dimensional map showing where the stars were no matter where you were in space. Now that would have been something! I hated the serious, highly important fuss that was made about the appearance of the stars in the summer sky in the northern

hemisphere vs. the southern hemisphere. I thought of the subject as the equivalent of spending your entire life gathering data and doing calculations to find the exact position and orientation of the furniture in the living room as seen from, say, the corner opposite the fireplace. It was a job for clerks.

At the invitation of the clarinetist player and leader of the band, George Goedecke, who was working towards his Ph.D. in physics, I once attended a meeting of the RPI Physics Club. The meeting was held in a basement, perhaps that of a fraternity house. They showed slides of a trip that several of the members had taken to a European physics conference. There seemed to be lots of in-jokes about this or that soon-to-be-famous character in the photos. The whole thing seemed to me nothing but a prestige game, a lot of gushing over who got accepted where, who knew whom. Not one idea was presented or discussed. (If it had been a meeting of jazz musicians, the attention would have been all on so-and-so's latest album.) Many years later — in 2007 — when I read histories of 20th century physics such as Amir D. Aczel's book *Entanglement: The Greatest Mystery in Physics*, and reports of the latest rising star[1] with a Theory of Everything, I had the same impression: physics was largely a matter of going to the right schools, studying under the right people, obtaining tenure at the right schools, then working on the right problems and, of course, ultimately getting a Nobel Prize. That was what being a physicist meant. Despite my best efforts, I couldn't help thinking of the history of almost any specialty in modern physics as amounting to little more than "At first, the lemmings all ran in this direction; but then, because of X's paper, they all ran in that direction; but then, because of Y's paper, they split up and half ran in this one direction and half ran in this other direction..." I couldn't help contrasting this culture with Newton, home at his mother's farm during the plague year, pursuing his investigations; and with Einstein, working at the patent office during the day, hanging out in coffee shops in the evening (some evenings) with his little discussion group; and with numerous other scientists over the recent centuries for whom their own curiosity, their own ideas, came first.

But George accepted his ordeal without complaint. I was amazed and angry that no one asked it there might not be a simpler way to present the material. You bowed your head and took the punishment and if you survived, you became a physicist.

There and then I wrote off physics as a possible career — not that I felt I had any chance at it anyway after listening to George describe the difficulty of the quantum mechanics he was studying. I remember him and some of the other students talking about the probability curve (the wave function) that was the best you could hope for to describe the path or location of an electron or other particle. Now, half a century later, with far fewer brain cells, I have not the slightest doubt about my ability to learn quantum mechanics, or any other subject, to any depth I want. I pay graduate students to answer my questions. I ask exactly the questions that I want, at the level I want, and record the answers in my Environment for the subject (see Curtis, William, *How to Improve Your Math Grades*, on the Web site www.occampress.com).

Certain undergraduate courses had a reputation for being all but impossible to pass. Qualitative analysis was one of them, quantitative analysis another. I never took either course, but I remember students talking about a typical test: each student was given a vial containing an unknown sample and had to figure out, in some limited time, what it was. (That was for qualitative; for quantitative you also had to determine how much of each chemical was present.) I can distinctly remember the lab where I heard two students talking about it with fear and trembling in

1. For example, Garrett Lisi, as reported in *The New Yorker* article, "Surfing the Universe"; 7/21/08; pp. 32 ff.

their voices. (Wooden floors, wooden walls in the distance, the lab tables with Bunsen burners, black tripods.) I listened to their conversation with the abject fear of the doomed failure. I knew I could never even begin to pass such a test. Think of all the chemicals there are in the world! The names themselves were sufficiently intimidating. Worse yet, think of how diabolically clever professors can be on tests (we all had ample experience of that).

Now, these many years later, with far fewer brain cells than I had then, I feel completely confident about how to approach either problem: (1) What is the goal? (2) What is the set of likely possible contents of the vial, given what the class is studying and has studied so far in the semester? (3) What tests can we perform with the equipment and chemicals we are given? (4) How can we organize these so that the sequence of tests will be performed in an efficient manner? (5) Draw a tree diagram to represent the testing strategy. (6) Procure apparatus. (7) Perform tests. (8) Write report. (9) Submit it. End of problem.

All the technical courses seemed hopelessly difficult to me. The exam phobia that had already appeared in high school now set in with a vengeance. An approaching exam was as dread-ful as an approaching visit to the dentist. The professors were out to trick us, they had unlimited resources for this at their disposal, our job was to participate in the process of helping the school get rid of the undesirable 50% of us. I grasped at every available straw. I tried to view the art of doing integrals in calculus as being essentially like the art of writing good prose: you could never hope to state explicitly the rules for writing good prose, but if you worked at it long enough, eventually you just knew how it was supposed to go. The trouble was, the intuitions that lay behind the ability to do integrals rapidly were very different from those that lay behind writing prose well. So I had to try to make something that was different be the same. Somehow. I thought occasionally that I should begin with the name "Rensselaer". Maybe if I learned its source, why it was spelled the way it was, perhaps a little of the history of that part of New York State, and the history of the Institute, that somehow, from that, my understanding of calculus would improve. I wondered how many times, over the course of my school career, I had taken a piece of blank paper and written the date on the right side of the topmost line, the name of the course in the center, my name on the left. Over and over, course after course, the same ritual. There was always a fragment of hope at this stage of the ordeal! Perhaps this time — perhaps if I write clearly, carefully, deliberately, perhaps that will make me get the right answers!

I must add that, by the time I was in my late sixties, and had read the above-mentioned book by William Curtis[1], I knew that one thing that had made calculus so difficult was the appallingly inadquate *indexes* in textbooks, thus forcing the student to hold in memory far more than was necessary. (The student should have been able to look up not only all technical terms, but also all symbols and even all commonly-occuring mathematical expressions.) Another thing that had made the subject difficult was the professors' not emphasizing the importance of the students writing out procedures for solving the various classes of problem. The student was expected to come up with these as a result of slogging through endless homework problems, and then remember them for use in exams. All of which only made the subject far more difficult and intimidating than it had to be.

As Curtis emphasizes, and I agree with him, a math course is ultimately just a great big table, and should be presented as such. A typical math course amounts to the professor reading the phone book or the dictionary to his class. Had I known this during the dreadful year and a quarter that I spent at RPI — had I know that in each math course we were in effect being presented with

1. Curtis, William, *How to Improve Your Math Grades*, on the Web site www.occampress.com)

a table in prose form — I would have been much less miserable. Though mathematicians will scoff at the idea (not the least reason being that it threatens their job security), I think that the concept of a mathematical subject as a table is one of fundamental importance (it is the first change in the presentation of mathematics since Euclid, around 300 b.c.e.), and will one day be regarded as a major step forward in the progress of mathematics.

History

For world history, we had a Professor Schumacher. He was the one professor I had any liking for, the main reason being that he had the courage to try to teach us a little about Marx's ideas. But later we heard that he had come within a whisker of being fired for doing so, this despite the fact that his lectures were given in the most scholarly, objective manner, without the slightest suggestion that Marx was right and that we should become believers. No observer could possibly have accused him of trying to brainwash us. Yet, in those McCarthyite days, the authorities were ever watchful for those who broke the rules, and the rules at that time were clear: no teaching, no mention of the economic philosophy which then ruled a major proportion of the earth's human population.

Barnstone and I slighted history throughout the semester in order to put all our time in on calculus and physics. But sooner or later, the final exam approached. We, or at least I, had only a C average. If I could get an A on the exam, then there was a chance Schumacher would give me an A for the course. So Barnstone and I decided to stay up all night the night before the exam, which was to be at eight the next morning, and do nothing less than cram the entire course. And we did it. We sat at our desks, read, and fired questions back and forth: "*When was the Council of Trent*?" "*What was its purpose?*" "*How did Adam Smith's ideas differ from previous ones?*" "*What was settled by the Congress of Vienna and when?*" "*What's the story on Bismarck?*" Somehow, we found a continuing supply of coffee to keep us going. On through the early hours we went, every once in a while, when confronting a long chapter we couldn't even remember having taken the notes for, getting up, falling onto bed, proclaiming that it was hopeless, let's take the D or F and forget about it. By dawn, we were so wired with coffee and fear and the now dim possibility that we were going to pull it off after all, that it would have taken us an effort to actually go to sleep. Eyes manically bright, we gathered our notes and books, went to the dining hall for breakfast, and then headed for the exam hall, our minds turning over on their own now with names, dates, questions, answers. We got A's on the exam.Within a few days, I had forgotten virtually everything we had memorized.

But I cannot deny that all the agony I endured paid off. I was on the Dean's List that first semester, and I think also the second.

ROTC

I should mention in passing that male undergraduates were required to take at least one ROTC course, the initials standing for Reserve Officers Training Corps. Why I don't know — it might have been necessary to ensure that we could not be drafted.. Few of us took the course seriously. We pronounced the abbreviation *Rot*-see.

I joined the ROTC band, about which I remember only the ill-fitting uniform and the bloody nuisance of having to tramp with my trumpet case across cold barren ground to the field behind the campus where we practiced marching and playing.

We also had to take classes in what I think was called "military science". These were given in a large hall, perhaps an armory, next to the marching field. I remember having to learn to calcu-

late the angle at which to set a mortar in order to hit a target a specified distance away. I think some kind of wooden dummy shells were shot out of the mortar tube

There was also training in how to fire an M-something rifle. I remember that the little rear sight flipped up. We were given rules for estimating yardage and for compensating for cross-wind. I think that on certain occasions, we fired live ammunition. You had to lie on the ground, legs apart, the rilfe strap tight around one arm in a certain way, then hold your breath and slowly squeeze, *not pull*, the trigger while counting up to or down from a specified number. I wondered what enemy was going to sit patiently with his head sticking up above his foxhole while we went through this rigmarole.

We all considered it an absurd waste of time.

A Good Italian Restaurant

In the desolation of Troy, there was one bright spot: Rose's Restaurant, which I think George introduced me to. It was a tiny place on a dark street that might have served as a movie set for a sinister part of a European city. The kitchen was behind a curtain at the rear. Rose fit the stereotype of a nervous Italian mother, but the food she served was exceptional: without question the best Italian food I was to eat for many years. Delicious spaghetti that I ate in accordance with Vic Trapasso's instructions, namely, by first winding a ball of it around my fork that was stuck into the bowl of a large spoon. The spaghetti sauce itself was worth the long walk down the steep hill below campus. Even though the winter wind was blowing and snowflakes were swirling, the red wine made you think of places where there is sunshine and happiness. No matter how miserable you were, you felt better after you ate at Rose's.

A Visit from My Mother

At least once, despite my protests, my mother came to visit. At the time, in constant exhaustion from struggling with calculus and my other courses, and from playing jobs with the band, I walked around in an old pair of tan or grey pants, a long flannel shirt that wasn't tucked in, and falling-apart mocassins. I had also grown a goatee, in imitation of the boppers, especially Dizzy Gillespie, since I thought there was a slight possibility that it would improve my playing. When my mother saw me, she was shocked. The entire visit consisted of her lecturing, demanding, that I shave off the goatee and dress properly, since the reputation of the family was at stake. The school itself — buildings, grounds, the restaurants we must have eaten at — were as though non-existent. I refused to make any changes.

Several weeks later, I got a phone call from Uncle Gus, who said, in his deep voice, that he was flying to New York on business, and thought he'd stop off at Troy and have dinner with me. We met at an expensive hotel in Albany: dark dining room, patrons engaged in quiet conversation, an eager-to-please waiter. He immediately made me feel like a man by asking if I would like a cocktail. He was impressed by my being a jazz musician and almost as an aside, half kidded me about the goatee. I knew immediately why he was there. He did his best to walk the thin line between trying not to do what he had been asked to do, and doing it. In the nicest possible way he wondered if, to keep peace in the family, to — if for no other reason — get my mother off my back (and his), I might not consider shaving it off. I told him that he could flatter himself on being the latest in a long line of distinguished adults — doctors, engineers, upper class women — whom she had gotten to do her bidding and make me change my ways. I said I didn't hold it against him (and that was true), but I had to keep the goatee now as a matter of principle. We shook hands, and I made sure he knew how much I still liked him, how much I remembered his

visits when my brother and I were younger.

But to the stifling weight of school was now added the stifling knowledge that she would never give up until she had won. No human being, I was convinced, could permanently resist relentless determination like hers, determination that destroys all before it.

The Students

Apart from the members of the band, and my first roommate, I remember only four other students from that first year: two pairs of Navy ROTC students. The first pair were like brothers, or cousins, bound together by the fact they were both in Navy ROTC. (The second pair were pilots and will be described below.) I have forgotten the names of all of them. The first two may have known each other before RPI, I am not sure. One had freckles and a sunny expression and an outgoing manner. The other was quieter, thinner, seemingly there to serve as companion for the first. Over Thanksgiving, one of them invited me to his home near Boxborough, Mass. I felt I had to do something to show I deserved the honor (I think they both were impressed by the fact that I was in a jazz group), so I attempted to write a piece of music. I would give anything to have the sheet of paper containing the composition I produced because it was probably unique: a piece of music written without the composer's hearing any notes in his mind's ear. It was essentially an attempt to write something based on the accumulated experience of reading a kind of text, "In order to harmonize this E, which is in a space, I think I am supposed to have a note below it, and also in a space: that would be a C." "If the melody is in the upper part of the staff, that will be better than if it is in the lower part." "If you don't know how to harmonize every note, yet can let one note carry over, it might harmonize the others." Of course, it is likely that I attempted to play the notes of the melody on trumpet as they were written down, but the harmony was sheer guesswork. But since neither one of them could read music, they were impressed by the sheet of notes I handed them.

The student's parents lived in a warm little house near a wide asphalt road in the country. He introduced me to his mother and immediately said that I was in a band and had written a piece of music. The mother bustled around with her preparations for the meal, asked where I was from, etc. The father worked in an electronics plant just down the road. He drove to work. It struck me as enviable, this having your work that close to home. The household seemed very New England, very Ph.D-like.

My host asked if I had ever been to Walden Pond. I said I hadn't, and so, probably around Thanksgiving noon, we drove the 35 miles to Concord. The scene is still very clear in my mind's eye. A gray, cold fall midday. A two-lane road. On the left a picnic ground under trees, the ground barren, with a few picnic tables, one or two lonely souls moving among the tables.

Below the picnic ground, a small, greasy, non-descript pond. I couldn't believe that this was where a classic of American literature was written. I had pictured a body of water the size of a small lake, lush green trees everywhere, not another soul for miles. To get to Thoreau's cabin, all we had to do was walk a few yards through the picnic ground to the woods — if that collection of tangled black sticks can be called a woods. In the distance was the sound of a train. The tracks had been there even when Thoreau was living in his cabin, which was a pitifully small, abandoned structure. The sound of traffic racing by was always in our ears. (How could he have done all that thinking with that racket outside his door?)

The recreation of choice for RPI students, as for all students, was drinking beer, but at least once they decided to go in for something more stimulating. The word went out that one of them

had managed to rent a pornographic film (they might have called it a "blue" film) and that it would be shown at such-and-such fraternity. They had dug up an old 16-mm. projector and a ratty screen. The shades were pulled down, sheets hung up over the windows, someone posted at the door as lookout, because you could get expelled from school for this kind of thing. For some reason or other, the projected image was only a couple of feet on a side, and I was sitting, or rather standing, in the back, so as not to be noticed. The black and white image was thus almost impossible to see. Despite the fact I can't remember a single scene, I do remember that I was blushing, my heart pounding, probably as much because of the forbidden nature of the activity as because of its eroticism — the mere idea that we were doing something dirty (just as in Scout camp!). Suppose I got so excited that I had an orgasm? Even worse, suppose I lost my nerve and tried to leave? In my mind's eye now, I see the backs and shoulders of the others, the sheets hanging over the windows, the small screen and the even smaller flickering image, everyone leaning forward, the nervous laughter and exclamations.

But there was an ugly side to these young engineers, these true-blue All-American males. The freshman class had one girl student — only one — and, naturally, she was studying engineering. The penalty for such a brazen intrusion into what had always been, and, in the eyes of the male students, always should remain, a male profession, was the most merciless taunting of this poor young woman by many of the male students. I think her name was Mandy but I am not at all sure. Everyone took it for granted that she was a lesbian, and the students made a point of accusing her of that every day. Somehow she managed to continue to go to classes. Forever imprinted on my mind is the sight of her at the bottom of a long stone stairway on the campus hill, being subjected to the day's torments by several of the male students. The student I was with had pointed her out, said something like, "Girls have no business here. The bitch is a goddamn lesbian." My heart went out to her, my hatred and contempt for engineers increased. And yet I never did a thing to help her ward off her male oppressors. I doubt if I even ever said a word in her defense.

"The Saints"

The Saints got jobs at fraternities. I worked hard at memorizing the tunes, most of which were brand new to me — "Muskat Ramble", "Skit-Dat-De-Dat", "Buddy Bolden's Blues", "Milneburg Joys", "Copenhagen", "If I Had a Talking Picture of You", "High Society", "Dr. Jazz", "Peoria" — but also at becoming a better improviser. This put me in a dilemma which to this day I have not resolved, namely, is it better to know all the chords, and the reasons, as established by musical theory, for the various chord progressions, or is it better to play entirely by ear? I anguished over this question, mainly because my natural instincts lay in the second direction. I knew what the chord symbols meant — C, G7, A min, F, ... — but to memorize the sequence of these for each tune, then to read it off in my mind while playing a solo, seemed to me to kill all spontaneity. Furthermore, I didn't have the mental capacity to memorize all the progressions for the several dozen tunes we played. So I played by ear and by emotion, and tormented myself for not playing the other way.

One thing that had made playing music so devoid of music in my childhood was that it was nothing more than rules that, incidentally, happened to require things that made sound in order for you to demonstrate your mastery of them. Exercises might just as well have been rules of Latin grammar which had to be recited. But listening to music was entirely different. The two activities had nothing to do with each other! After I had started playing jazz, I found that I could whistle any tune I heard after a quick initial adjustment of finding the starting note — and you could

get so quick at finding that starting note, just as singers do, that a naive listener would say you had perfect pitch, had they known the term. If asked to recall the tune from memory later on, I could whistle it though not necessarily beginning with the pitch I had heard it start from — in other words, the *tune* would be correct, but not necessarily the key. But I would have been unable — or at least not without a lot of trial and thinking — to name the intervals in the tune. To do that would have required taking the starting note, then whistling up the scale to the ending note, counting the notes as I went, then from that drawing the conclusion, "Ah! It's a sixth!"

But in those early years of playing jazz, I considered my inability to memorize the names of the chords, and my need to play by ear, to be just another failure among all the others.

As far as trumpeters were concerned, George (and later Carl Lunsford, a superb banjoist who joined us later) admired Bix Beiderbecke, the early Louis Armstrong (they hated the later), Jelly Roll Morton's trumpet player, and Lu Watters' and Turk Murphy's, Bob Scobey. All of modern jazz, meaning jazz from Benny Goodman on, was beneath their contempt, and so, of course, were all the musicians who played it.

I took immediately to Bix and early Louis. I memorized several of Bix's solos, in particular, the amazingly simple but beautiful solo on "Baby Won't You Please Come Home" (Columbia LP CL 846). I tried to duplicate Bix's singing tone and wide intervals (the opposite of a chromatic style). Louis's had too many high notes, although I could manage most of his extraordinary solo on "Struttin' With Some Barbecue" (Columbia CL 851). There wasn't a shred of doubt in my mind about the greatness of these solos.

Once we were playing a fraternity job. The room was very crowded, people dancing, the band playing on a raised part of the floor. The crowd liked us, and we responded by playing our best. After one of our breaks, George said that he had been talking to a friend of his who was very knowledgeable about early jazz. George reported with pride that the guy thought we were pretty good. "He asked me who the new trumpet player was. He calls you 'Little Bix'." It was the first time anyone had ever complimented me on the way I played jazz. My method was working: play by ear and heart! Bix had a hard time reading music, too, and look what he accomplished!

Of course, all it would have taken would have been for someone important to say something like, "The best musicians rely on their instincts. The best musicians play by ear." Then I would have emerged from my despair. That would have pulled me out in a flash. Because I was what people thought of me, and nothing more: what possible argument could there be against this for someone who despised self-delusion? Perhaps, with enough effort and twisting of your mind, you could convince yourself that you were a great jazz musician, or poet, or writer, and that it was just that the world hadn't recognized your genius yet. But that was reserved only for people who were in fact geniuses, and knew it. In other words, to have morbid self-doubts, to hate above all things the cosmic mistake that had resulted in your existence, meant one and only one thing: you were what other people thought of you.

My constant worry, while improvising, was that I might be playing something trite. Everything had to be original. And at times I would resort to "modern" jazz wrong notes in the middle of a Dixieland solo just to be sure I was being original. My way of playing was to constantly ask: What can I play that they will admire, that they will consider a sign of genius? Oh, no, that last phrase was trite, what can I play that will make up for it?

Somehow George (or Carl) had met an amusing older woman (she may, in fact, have been elderly) named Mrs. (Irma) McClumpha. Her husband, Mac, was the head of the Albany Jazz Society, a group devoted to traditional jazz. She seemed to like us and to take a liking to our music. Once she invited us to her house, which, in memory was an old place, woody, with soft

yellow light, and shelf upon shelf of traditional jazz records. We were delighted that she thought us that good.

Another time, George met a middle-aged guy who thought we were good enough to play at a club somewhere between Troy and Albany that specialized in traditional jazz. A great honor for us. We played there several times, as I recall.

George G

As I have said, George was working toward his Ph.D. in physics. (I remember that he explained *parallax* to me, which is a technique for determining the distances to stars.) He had crinkly, Gladstone Gander hair, already starting to thin, thick glasses, full cheeks and a booming, Louis Armstrong voice. He knew all the dirty drinking songs, and cultivated an earthy, hearty manner, although there was no doubt about his recognition of the seriousness of the academic goal he had set himself. He was, in the vernacular of the time, "raunchy", a word he liked to use. ("Grungy" was another favorite word, meaning "unkempt", "dirty". It also had a noun form, as in, "Hey, this floor is all covered with grunge!" A favorite verb of his was "crumped out", meaning, "sprawled in an exhausted state", as in, "Hey, there's a bunch of guys crumped out on the living room floor!") Sometimes we called him "Gooey dick", a variation inspired by the spelling of his last name. But his robust sense of humor had its limits, as I found out one day when, soon after he announced that he was going to get married (to a quiet girl who occasionally came to hear us play but seemed content to stay on the sidelines), I made a remark concerning him and his wife in bed together, and he turned, and said words to the effect, "Hey, Franklin, I don't appreciate that." I felt deeply ashamed: the pimply faced failure who would never in a million years be able to get up the courage to ask a woman to marry him, much less be able to perform his sexual duties properly afterward, had shown himself for the worm he was.

After a job at a local fraternity, we would sometimes go to George's fraternity, Sigma Phi Epsilon ("Sig Ep"), drink more beer at the bar in the basement, and he would bellow out dirty songs and verses.

"This is the story of Dead -Eye Dick
The only man with a corkscrew prick.
He searched the country in a futile hunt
To find a girl with a spiral cunt.
At last he found her, but then dropped dead:
For he found she had a left-hand thread."

and

"Come my children and you will hear
The midnight ride of Paul Revere..."

which concluded with something about him wiping his cock on the curtain and leaving. The line "...blew a fart and slammed the door" sticks in my memory.

George tried to get me to pledge Sigma Phi Epsilon, and I tried to please him by going through the motions, but eventually I gave up out of fear that being a fraternity man would mean that I would never accomplish anything in music.

He told us his mother was psychic. It was clear from the way he spoke about it that he, like a good scientist, still retained his skepticism, but he told us that when he was a senior in high school she had had a premonition about which college he would wind up going to, and furthermore had predicted the day of the week on which the acceptance letter would arrive. At the time of her premonition, he hadn't even considered, much less applied to, that particular college, but he eventually did and, sure enough, the acceptance letter arrived on the day she had named.

She believed that people from other planets were in communication with her and apparently she would report what they had said (they spoke to her in her dreams). She was absolutely convinced these beings existed.

Another accurate premonition about him occurred when I managed to convince him that he would enjoy skiing. The truth was, I needed a ride to the slopes and the only way I knew of getting one was by asking him to drive. Naturally, he wouldn't consent to simply drive me there and then sit in the car all day, so I had to convince him that the time had come for him to learn the pleasures of a new sport. A woman that he was close to came with us: I can't remember if it was his wife-to-be or his mother. I got him started on the beginner's slopes, tossed a few standard instructions at him — "Bend your knees!" "Lean into the hill!" — and then took off to enjoy my own skiing. Unfortunately the weather changed during the day, producing a wet snowfall. The thought never occurred to me that he probably knew nothing about the effect of wet snow on skiing, but in the afternoon I suddenly heard my name echoing across the slopes from the public address system. I was being asked to come to the infirmary. There was George, lying in bed, with a broken leg. He was not his usual cheerful self.

But he was not a man who was easily defeated. Many years later, he told me that after he moved to New Mexico in the early sixties, he again took up skiing, and eventually became so good at it that he was accepted as a member of the Ski Patrol. He also took up mountain climbing. Carl told me, again many years later, that George once drove all the way from New Mexico to upstate New York, where Carl was still living, a trip of two days or more. Carl's house happened to be made of brick, and as soon as George got out of the car, despite his fatigue, he began climbing the house. Carl was in his bedroom and there, outside the window, was George, heading upward.

He became a physics professor and then head of the New Mexico State Physics Dept. in La Cruces, N.M., and continued to play in Dixieland bands throughout his life.

Music Overcame My Misery

No matter how bad I felt about school and my lack of talent and my acne, I always felt better as soon as the music started. Typically, we arrived late Saturday afternoon or early evening. The big game had already been played, the fraternity brothers had been drinking for hours. The basement floor, where the bar typically was, was already wet with beer. The guys were hoarse from shouting during the game. Many wore ragged sweatshirts with cut-off sleeves, and shorts.

"Hey, here comes the band!", someone would shout, and, beer mugs in hand, they would all gather around, their dates at their sides. The social chairman would introduce himself, urge us to ask for anything we needed. The girls, leaning against their dates, looked at us with curiosity, who knows, perhaps a few of them thinking ("...that trumpet player, I wonder ..."). And then, when the drummer finally had his equipment set up, and the wingnut had been screwed down on the top of the highhat cymbal, and the foot pedal was thumping the bass drum just right, and the cymbals were slanted at the proper angles, and George and Carl had finished discussing what the

first tune should be, George told us the order of solos — "Franklin, then me, then Barnstone" — or he would only indicate the first soloist, and one of the remaining two players would simply grab the second solo as inspiration moved him. Then with one last look around to see that we were all ready, George would stamp his foot and count off in his Louis Armstrong voice, "*One*, *two*, *three*, *four!*" Suddenly we were surrounded by that joyful noise, suddenly the world had gotten down to business! The fact that the audience, including the girls, was looking at us with admiration contributed no small part to our euphoria.

I drummed the valves nervously before starting to play, but I always felt *new hope* when I was about to play a solo. If I had the first solo, the excitement of my opening bars (I had no clear idea of what I would play) filled me, then a few notes of lead-in, and with the rhythm section thumping behind me, I tried to make something beautiful, something that Bix would have approved of. Sometimes I picked out a girl to sweep my eyes past (it would have been very uncool to actually stare at her), or I concentrated on the far ceiling, or on the valves right in front of my eyes.

But although the good feeling prevailed for a few measures, the thought would inevitably intervene — Was that immortal? Could I have played it better? Why couldn't I play that phrase I heard in my mind's ear? Are they liking it? And I would try even harder to make the remainder of the improvisation say something. I would always try to finish on a sequence of notes that would make the audience know they had just heard something important, that they had gotten the News. After a solo, in response to the applause, I nodded quickly a couple of times, then looked down sheepishly at the floor. They danced, the place was filled with a din of music and hoarse voices shouting, then cheers when we completed each tune, someone always bringing us another pitcher of beer. As the evening wore on, the girls, some glassy-eyed from all the beer they had consumed, would lean more heavily on their guys, heads on their shoulders.

We would play till 1 or 2 in the morning. The steady plink-plink-plink of Lunsford's banjo (he, like Freddie Greene in the Basie band, never showed a trace of emotion while he was playing: he was the musical scholar at work), the blare of trumpet, clarinet, and trombone, which to me was like some big, ungainly, shiny red and yellow and silver tin can rolling down the street, the couples dancing, the hoarse voices of the beer-drinkers — now what I was doing was important!

Classical Music

The long-playing record was new in those days, and at first the record companies produced recordings aimed at demonstrating its dazzlingly high fidelity, e.g., Berlioz' *Roman Carnival Overture* (lots of brass and cymbals); Moussorgsky's *Night on Bald Mountain* in the Rimsky-Korsakov orchestration; the Ravel orchestration of *Pictures at an Exhibition*; Rimsky-Korsakov's *Russian Easter Festival Overture*; Bach's *Toccata and Fugue in D Minor*, and various locomotive whistles. Record clubs sprang up, employing the infuriating device of sending you records each month and charging you automatically unless you sent the records back. What many of us did in retaliation for this effrontery was to keep the records we wanted and simply never pay the bill. In this way I got the Vivaldi *Concerto for Two Trumpets and Orchestra*. I played it over and over: the heroic sound of the trumpets brought me through some of my worst hours struggling with calculus problems. In a record store I bought an album[1] of Andrés Segovia which contained the *Bourrée* from Bach's Lute Suite in E Minor, another recording I played over and over because it seemed an absolutely perfect piece of music. Segovia was something of a star at the time because no one had ever heard anyone play classical music on the guitar before.

1. *An Andrés Segovia Program*, Decca LP DL 9647

But to the engineers, train whistles and classical music were all the same: they were simply a means for enjoying stereo. The Party line was that LPs had no background noise, and for a while I believed it, but soon the truth emerged. The records I bought always developed pops and scratches and hisses no matter how carefully I treated them. They seemed to have scratches even before I took them out of the envelope the first time. You were supposed never to touch the surface. I didn't. You were supposed to wipe the surface with a soft chemically-treated cloth before you played the record. I sometimes did. You were supposed to have a little brush mounted on the front of the needle arm, which would keep dust from getting to the needle. I had one. Nevertheless, within a few plays, or so it seemed, the record sounded like the needle was running on sand. When CDs came out, many years later, the same engineering hype accompanied them. "No background noise!" "You can't hurt them even if you try!" There was talk about people using the disks for frisbees and their still providing perfect sound. Not me. Within a few plays, my CDs start skipping.

The engineers always seemed to have better luck. I thought that the reason might be that they always had big, flat, heavy turntables, and always placed the needle gently on the record manually, instead of just pressing a lever, as I did on my portable player.

Barnstone and I Hitchhike to Florida

Barnstone and I decided to hitchhike to Florida during the winter break. Its reputation as an ideal place for skin diving was no doubt my reason for wanting to go, but since I recall his having no similar interest, I don't exactly know why he was willing to subject himself to the ordeal. It meant walking from the dorm to a main road, carrying sleeping bags, tent, my skin diving gear, whatever clothes we thought necessary, sticking out our thumbs, and traveling some 1500 miles that way.

Hitchhiking was a standard mode of travel for teenage boys in those years. You stood by the side of the road holding out your thumb, and tried to have just the right expression of pleading and innocence. Car after car would go by. Then the tail lights of one would go on, the front would sink down, and you would race for it. Open the door, quickly check out the interior. Queers and crazy drivers, especially drunks, were the main worries. We didn't worry too much about robbers because most kids who were hitchhiking were doing it because they couldn't afford any other form of transportation. If there was a guy sitting in back who looked suspicious, or if the driver looked queer, you would find a way to decline the lift. Otherwise it was "Thanks a lot! You going to White Plains?" "Not all the way, but I can take you part way." "Great, thanks alot." And you climbed in, pulled the door shut and prepared to make conservation. In Valhalla, sometimes the neighbors picked us up. We had to read the newspapers, because after a driver had been murdered by some derelict he had picked up, the chance of getting a lift dropped to near zero for a while. I recall running into trouble only once. The event had something to do with RPI but I cannot remember what. In any case, while hitchhiking at night, I was picked up by a whole carful of queers and, to make matters worse, they were drunk and driving way too fast. When I asked to be let out, they refused. Since we all knew that queers were the worst of the worst, I seemed to gain courage, apparently from the idea that any kind of resistance on my part would be viewed as heroic — here there were no rules. If I caused an accident trying to defend myself, and if some of them were killed, that would be no loss. I was ready to rip their faces apart with my bare hands if it came to that.

Of course, there was justifiable fear among the drivers as well. Was this kid going to pull a gun and rob him, perhaps kill him? I remember that, on the Bronx River Parkway, right near the

center of the Village, I was picked up by a guy and, in the course of conversation, asked him if he had ever had any trouble with people he picked up. He said no, but he was a police detective, and always had protection close at hand: specifically, he had a loaded revolver in a holster on the left-hand side of his seat, near the floor, where he could reach down and get it without being noticed by the person in the passenger seat. (I saw him reach down while keeping his eyes on the road.) I was impressed.

I remember very little of the Florida trip except the truck drivers, who didn't seem to mind picking up two scruffy college students and allowing them to throw their gear in the back of the cab, then talking to them as the miles rolled by. I found out that some of the rigs had 13 gears or more; that the drivers took Benzedrine to stay awake; that accidents on the icy roads were a constant threat, the rear wheels suddenly losing traction and the trailer skidding off onto the side; that it was the custom for truck drivers, when another truck passed them, to blink their bright lights on and off once to signal to the other driver when it was safe for him to pull back into the right-hand lane, i.e., when his long trailer was sufficiently far ahead so that it wouldn't hit the cab of the driver behind when he pulled back into the lane. For years afterward, I would do this when trailer trucks passed me, feeling rather proud and comradely with the drivers.

What I recollect of Miami is a combination of memories from this visit and a second trip I made alone the following year. Lugging our gear, we spent a night on the side of the road next to a swamp. The undergrowth, which consisted of tangled branches, was so thick we spread the sleeping tarp on top of it, then drove the tent poles down through it to the soggy dirt and somehow got the tent to stand up, all the while imagining the snakes who were squirming underneath. But we were so tired, we didn't care. Let them crawl all over us. (I was particularly afraid of coral snakes, which were described in the Encyclopedia Britannica. Their colored rings — black, gold, blue, red — were the same as those in one of my mother's necklaces.)

In Miami we stopped at a skin-diving shop that was famous for being owned and operated by three brothers who were always being written up in the diving magazines. Their diving ability and physical prowess was legendary. I think we saw them getting into a boat once. Someone advised us to go to Key Largo and look up a guy named Bob Leberz (who also used the name Jordan Klein for some reason), which we did. He was interested in treasure hunting, had an electronic metal detector that you could sweep back and forth across the beach sand as you walked. I think it supposedly worked underwater too. Near where he lived was a restaurant called "Mac and Marie's", named after the jolly guy and his wife who ran it. Apparently it was famous among the rich and famous because it had pictures of various celebrities on the walls, including members of the Rockefeller family. We could only afford one or two meals there. The fish, which was always freshly caught, was very good. They said they would buy certain fish from us that we speared. So one day we went out after a type called "hogfish".

Neither of us had ever swum in water this blue, this clear, this warm before. The air was warm and lazy. Leberz pointed out the fish, we dove, swam up to them with our slings, aimed, fired, hit them, dragged them up into the boat. The water was only about fifteen feet deep. Then I saw Leberz suddenly point off into the blue and signal that we should head for the surface. I dimly made out something that looked to me like a shark — I saw its white underbody moving from side to side, the tall dorsal fin — slowly coming toward us. I kicked so hard for the surface that I didn't even have to climb over the side of the boat to get in it: I burst out of the water and half flew over the side.

We watched the shark from above as it slowly make its way over our hunting grounds, attracted by the smell of blood, everyone said. I was surprised at how leisurely it swam. It wasn't frightening at all once you were in the boat.

Another time we went out to an underwater park — a novel kind of park for us! We seemed to travel miles over the soft, blue water before we reached it. There was a sign in the bottom giving the park's name, and the undersea life was even more plentiful than what we had seen till then.

Because of his treasure diving interests, Leberz had equipment for helmet diving. One day he took us out in his boat to let us try it. Only for some reason we didn't go out in the ocean proper, but instead into a kind of channel, with thick greenery on both sides, and a bright, sandy bottom. The "helmet" was not the kind we had seen in photos, but simply a rubber diving mask in which the entire part covering the face was glass. On top of the mask was a connection for the air hose. I put it on, then a very heavy weight belt, and tennis sneakers, Leberz started up the air pump, and attached the hose. This was not a demand regulator: the air simply poured into the mask and then exited through one-way valves. I climbed over the side and down the short ladder extending below the boat.

The bottom of the channel was some fifteen feet below. I alighted on the white sand, saw various rocks and tufts of seagrowth, and took a few steps, imagining that underneath the white sands were dozens of sting rays waiting to jab my ankles with their poisonous tails. Even though the current down the channel was mild, it was nevertheless like trying to walk in a strong wind. The clear glass of the mask made it seem that I was breathing the water. The exiting air meantime streamed to the surface. For some reason, it occurred to me that channels like this must be how schools of eels get from wherever they live inside the islands, out to the open sea. I imagined them, all bullet gray and with expressionless faces, suddenly appearing out of the upstream gloom and enveloping the human flesh standing in their roadway. I don't think I stayed down very long.

On the way back from this expedition, we kept close to the island shorelines to see what we could see. One thing we saw was a small octopus, my first. It was trying to hide under the overhanging roots. It was small enough to hold in one hand, pink, and looking nothing if not shy. It was the extreme opposite of the undersea monsters in Colonel Rieseberg's book, *I Dive For Treasure*[1], a book that I still have, and which, I notice, has the stamp of the Valhalla School Library on the title page, meaning that it is probably another of the several books I permanently borrowed from the Library. In his day, Rieseberg was famous as a treasure diver and undersea explorer, activities he carried out, in those pre-scuba days, in old-fashioned diving suits and crude diving bells (which he called "robots" even though they were manned). There are several grainy photographs in the book of a huge octopus, with tentacles as thick as a man's body, completely engulphing one of the bells, which, however, was able to systematically cut off the tentacles with its steel claws and thus kill the beast.

Another time we were out with a group — this may have been on a trip led by someone from the diving brothers' store — and someone spotted a school of barracuda. We jumped in after someone warned us to take off any finger rings we might be wearing, since the barracuda were attracted to them and tended not to be concerned if the finger was still attached to the ring when they snapped at it. The water was about twenty feet deep at this point, very clear, the white sands warm and radiant, big undersea plants everywhere, an abundance of fish, the water like a bath, as we swam along in our long underwear, which we wore not because the water was cold, but to

1. Rieseberg, Lieut. Harry E., *I Dive For Treasure*, Robert M. McBride & Company, N.Y., 1942.

keep ourselves from getting sunburned. As soon as I saw a few barracuda, I decided this was not for me, although one or two of the other divers went after them with spears.

On the trip back to RPI, we were picked up by a couple of farm boys in Georgia. The back of the truck was full of hogs. The stink was inescapable even inside the cab. The boys were amazed that we had come all the way from New York. We asked them how old they were. They said fourteen. We expressed amazement that they were driving a truck on main roads at night at that age, but they seemed to consider it perfectly normal.

A Couple of Daredevil Pilots

Apart from music, the only real excitement — I will even call it pleasure — I had during those grim months was in the spring, when I met a couple of students who had pilot's licenses. They were in Navy ROTC, although they must have known how to fly before they came to school. We would go out to Troy Airport, and they would rent the Luscombe belonging to the RPI Flying Club. It was a single-engine plane, two-place, with side-by-side seating. (To this day, I want to say the seating was "tandem" and always have to look up that word and then, having been reminded yet again that "tandem" means "one-behind-the-other", write or say "side-by-side". Like "surname", it is a word whose meaning I simply cannot remember.) Unlike the Piper Cubs at Armonk and Reynold's airports, the Luscombe had a metal fuselage, and, instead of a stick, control wheels that looked like racing car steering wheels.

This was the first time I had been in an airplane since the trip to Maine to see Pat. But the passion of these two for flying, and the fact that they always seemed to make a careful inspection of the plane prior to each flight — gentle thump here, tap there, raising of the tail elevator, turning the rudder from side to side, then checking elevator, rudder and ailerons from inside the cockpit — made me put aside my fears. As in childhood, I felt good at an airport. The wind, the open space of the runway, the fact that this was a place that you *left behind*, a place that you could *get to the clouds* from ...

Since the plane was only a two-seater, I rode with now one, now the other of the pilots. One was a little crazier than the other. Students who knew them both said that he was the one likely to wind up as a Navy fighter pilot. When he took off, he would roar down the runway but keep the control wheel pushed forward so that the wheels remained on the runway, then he would suddenly pull back on the wheel, so that, with all the lift under the wings as a result of the high speed, the plane would shoot into the air at what seemed like a 45-degree angle, like a modern jet taking off. When you saw this from the hangar office, it looked like the plane had bounced into the air.

Neither one of the pilots had any interest in merely flying straight and level. They always seemed to have something new and slightly dangerous to try out. For instance, doing loops around tufts of clouds. On a beautiful spring day, with the cumulus dotting the sky, we flew along above the clouds. I would look down and think, "Oh, please, just let me out here, down there is where I want to spend the rest of my life, just lounging around, floundering through this white mist, lying on my back, looking up at the sky, rolling over on my stomach, contemplating the rolling green fields and stone walls below. No calculus, no mothers, just fresh, cold air and clouds." The pilot explained the maneuver he proposed to do, prefacing his remarks with the vaguely ominous, "I haven't been checked out on this, so actually I shouldn't be doing it, but..." The idea was to find a tuft of cloud sticking up from the field of cumulus, and then dive down through the middle of it, pull up sharply, loop over the top (upside down), then dive back down through the point at which you entered it.

We flew along, examining the candidates. "No, not high enough...No, too wide..." Then: "That one! Ready?" "Ready!" I would say. And down we'd go, diving, racing toward the white pinnacle. Then there would be a quick blur of mist, and, laughing, he would pull back on the wheel, the world would turn around and now all you could see out the front window was blue sky. I could feel my blood shifting into my stomach, then into my head. I tried to look out the small window at the top of the fuselage to see the tip of the cloud as we went over, then down we went, straight down, past the white cliff and then into it once again, and with the sun shining in our eyes, we would level out. We would both shout over the engine, "Goddamn, son-of-a-bitch! Yeah! That was great. Let's do it again!" I, who went to the dentist like a man going to his execution, and lived in constant dread of cancer and insanity and the shame of failure, had no fear at all during these acrobatics.

We played a game that was apparently used in some competitions which the flying clubs held, and consisted of the passenger opening the door on his side and throwing out a roll of toilet paper, which, unrolling, made a long, white streamer in the sky. My job was to keep the supply of three or four rolls and throw one out on command. I had to unroll it a little ways and hold on to the end so that it would unroll properly as it fell. The challenge was then to cut it with the wing three times as fast as possible. This was achieved by diving sharply to the left or right once the pilot had seen it, then, as soon as it was cut the first time, pulling back on the stick and trying to cut it again at the top of the loop, then diving down into it the third time. The roar of the engine in our ears, he would shout with the devilish joy of the whole thing: "Got it! Now...I see it!" He worked the controls like a madman. "Yo, over we go!" All the blood would rush into your stomach, then into your head. Your cheeks were pulled tight. Again and again we chased the graceful white ribbon undulating in the blue. Far below was the sunny green countryside, the quiet farms, irregular rectangles made by the stone walls, the meandering roads.

Once, in late afternoon, we got lost over Schenectady. I remember his calm admission: "I'm not sure where we are." The obvious landmark to look for was the Hudson River. As the sun descended, I kept my eyes on the ground, reporting what I saw to him: "Nothing, nothing, there's something that looks like a river." "Where?" Then, after banking so he could see, "No, too small." In order to ease the tension (mine) I asked him about other airports in the area, if he had ever made an off-field landing, if maybe we shouldn't think about that before it got dark, considering it would be all but impossible afterward. But then, suddenly, he said, "I see it!" Nodding toward the front beyond the nose. Oh, yes, there was a strip of black that must be the river. Now where was Troy? We swooped down onto the runway just before the light was gone. People at the airport were angry at him when we came into the office, why I am not sure, since he explained what had happened. Throughout, I remained cool and collected.

Buying a Gun

God only knows why, but sometime during those months in the wastelands of upstate New York (possibly on a cold fall weekend, the leaves changing color, the bony ground cold and barren, sun going down already in late afternoon), I decided I should buy a flintlock rifle. Who connected me with a person wanting to sell one I have no idea, but I remember that the rifle was more than six feet long, and that the dull gray rusted-then-cleaned barrel seemed to me wafer thin, given the exposive force it was supposed to contain. It had an ancient lock, with an equally ancient pad of some sort to hold the flint. The person selling it said that the reason the barrel was so long was that it had been made for sale to the Indians, who paid for guns with beaver pelts stacked as high as the muzzle. So naturally the manufacturers made the barrels as long as possi-

ble. Because of my concerns over the thin barrel, I never fired the gun. I always made sure it was one of the items I took with me, but somehow, it got lost. Again I ask: how do such things happen? It is as in dreams, in which we have vital belongings that we must take with us on a train trip somewhere, and we promise ourselves to keep an eye on each of them, but then suddenly one thing is missing — a shoe, maybe, or a pair of skis, or a knife — and we must rethread our way, through crowded rooms next to railway platforms, past piles of other belongings, to try to find it. Soon we realize that we are not sure of the way back, so that now everything will be lost (and the train is about to leave) unless we search every possible place. The fact is: there was a time when the flintlock was last among my immediate belongings, and now it is not. It is unlikely that someone deliberately destroyed it — melted it down in a furnace — so that means it exists now somewhere, at this moment. Where?

The Summer of ’55

In the summer of ’55, I stayed in the YMCA on Mamaroneck Ave. in White Plains, although my mother wanted me to stay at home with her. I realized that the place was full of queers — everyone knew that — but it was the cheapest place I could find that would give me the anonymity I wanted. I can’t remember what I did during the day: caddied, probably, which meant many miles of bus riding and hitchhiking. I suppose I was able to borrow the car once in a while in the evening, but certainly my mother wouldn’t have allowed me to have it during weekdays. And going several miles to Valhalla to pick it up would have been a nuisance anyway.

Initially, I shared a room with a middle-aged, thin guy who, because he suffered from asthma, smoked King Sanos, a non-tobacco cigarette which smelled like burning, dried seaweed. He would wheeze in between puffs, talk about his never-ending struggles to find a job or whatever. The smoke and his endless talking drove me to get another room, this time a single. There were noises in the corridors at night. I constantly imagined the goings-on in the bathrooms and showers.

When I came home from work in the evening, I tried to teach myself the first of Bach’s *Two-Part Inventions* on the old piano in the back room on the ground floor, I think because Heim had played it for me and it seemed so inevitable and beautiful. I may have had a fingering chart available, or I may have tried to reason out the most efficient fingerings for the notes to be played, but I played it over and over in the evenings, getting nowhere, always having to slow down or pause at the hard parts, hating myself every moment for my lack of talent.

I remember Heim coming over one time, in the evening, asking me to go with him somewhere, I’m sure to some musical event. He stood down in the courtyard, trying to argue me out of my sullen refusal. A long, stupid discussion ensued about what the purpose of life is, whether you should give in to pleasure once in a while or not. If I had had a gun, I would very likely have killed myself, then and there.

Bill Alexander was still around — I think he was preparing for a trip to the Caribbean so he could study calypso or flamenco guitar — , and so one night he and a couple of his friends and I went out drinking. As we lurched out of one bar, I got it into my head to try to lift up the No Parking signs. The bases were conical and made of cement, so it took all my strength just to get them a few inches off the ground for a second or two. We wound up outside of my room at the Y. Alexander and I started arguing and I was drunk so that, for once, I didn’t care about losing my temper. Suddenly, in a split second it seemed, without a moment’s thought, I punched him in the jaw. It was an instantaneous jab that neither he nor I anticipated. His face suddenly disappeared

from my view. I sensed the others scrambling around at my feet, trying to help him up. It was the first and only time I ever hit someone in the jaw. I didn't feel at all bad about it.

Back to RPI

In the Fall of 1955, I was back in RPI to serve another year of my four-year sentence. Again the courses seemed hopelessly difficult, and this time my grades showed my waning interest in trying to keep up. I cannot now remember the contents of a single one, not a single professor, not a single moment in a single classroom, not a single textbook, not a single idea, not a single fellow student except Barnstone. But the band was about to achieve the summit of its success, because first of all, George had gotten the banjoist Carl Lunsford to join us full-time, and, second of all, the entire band decided to rent an apartment together.

Carl Lunsford

Lunsford was a tall, skinny guy with a devilish goatee and grin to match, who had already played with Turk Murphy on the West Coast in '54. He drove an old MG, wore a cloth workman's cap, and seemed very British, although he spoke with a very slight Southern twang.

He arrived with a trunkload of '20s sheet music which he had accumulated, sometimes for free, sometimes by paying 10 or 25 cents for the music for a given tune. He also had a record of an Ohio group called the Gin Bottle 7, which was led by the cornet player, Carl Halen. George expressed admiration for his playing, and I immediately understood why. I couldn't get his solo on "Nagasaki"[1] out of my mind. I listened to it again and again, and memorized it. Some 50 years later, I can still whistle it, and I still remember the valve fingerings, both to the tune itself and to Halen's solo. The Gin Bottle 7 band was one of our idols, the other being, largely through Lunsford's insistence, Lu Watters' and Turk Murphy's. We always sang the lyrics to the song when we performed it:

Hot ginger and dynamite
There's nothing but that in sight
Back in Nagasaki
Where the fellers chew tobaccy
And the women wicky-wacky
Woo

The way they can entertain
Would worry a hurricane
Back in Nagasaki
Where the fellers chew tobaccy
And the women wicky-wacky
Woo

[Bridge]
In Fujiyama
You get a mama
Then your troubles increase.

1. Written in 1928; music by Harry Warren, lyrics by Mort Dixon

In some pagoda
She orders soda
Earth-shake milk-shakes, ten cents a piece.
They kissy and huggy nice
Oh! By Jingo! It's worth the price.
Back in Nagasaki
Where the fellers chew tobaccy
And the women wicky-wacky
Woo

The tune was made for improvising — in fact, I always thought that it was impossible *not* to do a passable improvisation on it[1] — and so I didn't always just repeat Halen's solo.

Once, as we were going somewhere in the dead of night, and discussing the advantages and disadvantages of pot for the jazz musician, he told me that one time, while driving on the Bronx River Parkway while high, and also very tired, he had suddenly seen a beautiful rose bush growing right in the center of the road, right out of the asphalt, and directly in front of him. He swerved to avoid it, almost ran off the road, and from that moment on decided maybe he shouldn't smoke pot while driving on long trips.

There was no doubt in his mind about the importance of Dixieland, since he believed without a shadow of a doubt that jazz died in 1941 with the death of Jelly Roll Morton. The subject was not arguable with him, not even discussable.

He was always breaking strings on his banjo. We would have to stop and wait for him to put in a new one. On jobs, he just kept playing. I never noticed the difference.

He had a girlfriend, a nurse named Jan Schultz, whom we all assumed he would marry.

The Band Rents an Apartment

George and Carl proposed the whole band rent an apartment together, so we could practice more. And so we did, only a few blocks from campus on the avenue that ran past the north end of campus. Our landlady was a sexy, middle-aged lady named Mrs. Rosen. She lived upstairs; we rented the ground floor apartment beneath hers. I remember her as wearing black but always having a sparkle in her eye when she talked to one of us. She must have liked college boys indeed to be willing to live directly over an entire Dixieland band, at least one whose members was practicing throughout the daylight hours.

We became scholars of the jazz and popular music of the period, each of us memorizing our part in tunes like "Wolverine Blues", "If I Had A Talking Picture of You", "Buddy Bolden Blues", "Struttin' With Some Barbecue", "Farewell Blues", "Doctor Jazz"[2], "Peoria", "Milneburg Joys", "Blues My Naughty Sweetie Gives to Me" and many others, not to mention standards like "High Society" and "Muskat Ramble". Some of them, such as "High Society", were really three or four tunes in one, since they were modeled after traditional marches. Looking back, I am amazed at how much music we came to know by heart. Carl and George wrote out parts for us from the sheet music. I had no anxiety about memorizing this music. Far better to have to memo-

1. Over the years, there were other tunes that I felt that anyone could improvise to — that it was impossible not to be able to improvise to. Among these were "Indiana", "Baby, Won't You Please Come Home", "Lulu's Back in Town", "Peoria", "Lady Be Good"., and, of course, the blues.

2. I now remember only the first line, "Hello Central, give me number nine..." (the lyrics in Wikipedia do not seem to be the ones we sang).

rize it than to have to read it from sheet music on a music stand. (No Dixieland band, no jazz band, would have done that anyway.) And thereafter throughout my life, whenever I thought of a tune — one that I had played or heard or something I had made up — I would automatically do the fingerings (or what I guessed were the fingerings) on whatever was available — a table top, the back of my other hand, my thigh.

But as far as the question of how to improvise is concerned, the most remarkable technique I ever heard of was that of Goedecke — not so much because it produced solos of particular originality, even though his playing was always competent — but because of the fact that it worked at all. We were playing at a fraternity in Troy somewhere, I think getting ready to start after a break. I seem to remember music stands, which was very unusual. In any case, there we were, on the polished blond wood floor, the rest of the band getting settled, the audience milling about, and the subject of improvisation came up — techniques that each of us used, what seemed to work, what didn't. And he said — and I had no reason to doubt him — that the truth was he had a tin ear, could never play by ear, and as a result always had to memorize all the melodies of the tunes note by note — picture them on the staff in his mind.

"How do you ad lib?" I asked, incredulously. (We, or at least I, used the term "ad lib" or "take a solo" rather than "improvise", which sounded pretentious. "Improvise" was something that people might do in music school.)

"Memorize the chords," he replied.

And then he went on to explain that he memorized the letter equivalents of all the chords, G7, C-minor, B-flat, and then, knowing the notes in each chord, constructed solos by running up and down the notes — in effect, improvising as a deaf person might! He said he had a good memory for long strings of formulas, which was one reason he was a physicist. I asked him how he knew what worked and what didn't. He replied that he had memorized numerous phrases from records, so he just applied these to the chords as they came along. (Clearly, he must have had some minimal musical sense, since otherwise his playing would have sounded odd. And in fact he had showed an unusual sensitivity for music from the earliest age: he once told me that his mother said that when he was an infant, and heard violin music, tears would come to his eyes. But the anecdote can be interpreted in at least two ways, of course.)

I was amazed at his revelation. At first I thought he was kidding, but he seemed serious about it. I thought that this might account for the raspy, lemony sound he had, which gave his playing a bite that other clarinet players' sound lacked. Maybe he was playing slightly out of tune because he didn't know the difference! Some forty years later, I told George's story to Carl. He doubted very much that George actually played that way; he was too good a musician.

George had a friend, a big, tall guy named Joe Noveski, who hung around with the band and, in fact, shared a room with someone in the apartment. Joe had flunked out of school and had a serious drinking problem. (Carl told me, in March, 2011, that Joe routinely served orange blossom[1]s to everyone when they got up in the morning.) He had long eyelashes (like the Snuffleupagus on *Sesame Street*), and seemed content to do nothing but laugh at the casual jokes made throughout the day, and once in a while give us a hand with our instruments.

Our lineup was: Barnstone on tuba; Doug Seyers, trombone; George, clarinet; Carl, banjo; a guy from Troy, not a student, drums; me on trumpet. Occasionally we used a piano player, but that was considered less authentic. After I left the band, they used Bert Lippus on piano[2].

---

1. A drink containing gin and orange juice; Barnstone told me in a phone conversation in November, 2011, that actually, Joe served us screwdrivers consisting of 50% orange juice, 50% vodka.

Doug somehow managed to get a hearse for us to drive to jobs in, which was entirely appropriate, given our name. I remember sitting in the back, looking out through the curtained windows, and down at the metal strips in the floor which presumably were what the coffin had slid on, and thinking about all the dead people who had been exactly where the drums and the tuba now were.

Carl and George shared a room in the apartment. Carl told me many years later that George used to fart all the time. He also said that Barnstone never washed his underwear. He would throw it in his closet and then, when he had run out fresh underwear, the would start at the bottom of the pile and rewear each item. Some of the laundry was in the closet so long that mice ate the crotch out of some of his underpants.

Once, it happened that all of us ran out of money at the same time. There was a meeting in the kitchen, and it was decided that, till we got paid for a forthcoming engagement, or until one of us got a day job, we would all have to live on whatever food was in the kitchen at that moment — which turned out to be a case of quart cans of tomato soup and a similar amount of tomato juice. So for two weeks, morning, noon, and night, that is what we lived on, perhaps with a piece of bread now and then, plus potato chips. Until that time, I loved tomato soup more than any other kind, but by the time we could afford a better diet, I was so sick of it that it was over a year before I could bring myself to have any. Not even the vodka in a Bloody Mary could get me past the tomato juice in the drink.

Now that I was playing music seriously — now that I was engaged in something important in music, not only in my opinion but in the opinion of those I was playing with — I felt I deserved a new horn to replace my Conn. Bach Stradivarius was generally considered the best you could buy. I priced them at local music stores, and found that I could get one for $350: far more money than I had. So I called my mother. She refused to make me a loan. I argued with her, begged her, and finally, I assume by promising to repay her in full out of my band income, she lent me the money and soon I was the proud owner of a new horn.

One afternoon we rehearsed at a house in Albany. It was on a hill and overlooked other houses below, suggesting a European urban setting. We were in a nice, soft living room, with yellows and browns — somebody's home. As usual, the weather was cold, though on this particular day with high clouds, hence not as depressing as usual. We had a lot to get done, so someone suggested it might go more easily if we had something to drink. We bought a gallon of sauterne, a wine which immediately reminded me of the French countryside, so I drank a lot of it, and before the rehearsal was over, I was drunk. Ever since, sauterne has been a wine I do not drink, because I feel I am under perpetual admonishment by some unknown authority: "You had enough sauterne on that afternoon in 1955. That is all you get in this lifetime."

The Union

In those days the union rules for traveling bands required (1) that they should never play for less than scale, and (2) that they should hire a certain percentage of their number from the local in whose venue they were playing, or else pay a 10% traveling tax. We laughed at this rule — what union hall hack could know all our tunes, much less be able to improvise properly? — and hence we ignored the rule. We drove to a college in New York or Vermont, played for the big game

2. Barnstone told me in that same phone conversation that whenever someone put a drink on his piano, he drank it, and on several occasions, during a job, when he got up he fell flat on his face.

weekend, and were gone before the union officials knew we had been there, and even if they had, it would have taken them more time than it was worth to track us down.

But one time, we were forced to hire out of the local union hall in Troy — not to avoid paying traveling tax, but because in the last minute, our regular tuba player had gotten sick. I think George just picked up the phone and called the union, specifying a tuba player who could play by ear and knew at least some of the jazz tunes which he then proceeded to list. We had reserved a hall of some sort, and I remember how when we arrived, there, on the stage, was this fat old guy with a red nose, sitting on a metal chair, with his hands folded between his knees, and his trusty tuba (not a sousaphone but a real tuba) upside down on the floor next to him. Greetings were exchanged, hands shaken all around. The guy looked like a guy who had been told to show up and do what people told him to do. We briefed him about our style of music. He nodded. We began with some easy tune, which I can no longer remember. In the rear, we heard a few oomps, occasional pahs. If you were the teacher you could not honestly say that the kid deserved an F, but you would also be hard pressed to have given him more than a D. We tried another tune. George didn't want to hurt the guy's feelings. We tried a few more. Who knows what we did then: called an early end to the rehearsal, told him we'd call him about the time and date of the job. He may, for all I know, have pulled a cloth cover over his instrument before leaving. He had said barely a word. He could go back to the hall and say, honestly, that he had done as he was told, and let's have a beer. As I think about it, I can't help realizing how painful it must have been for him, this poor old guy whose main activity as a musician was probably waiting to be called to fill in for the local American Legion band, or municipal band summer concert. Maybe he worked in the basement of one of Troy's decrepit businesses. Maybe he drove a truck. But this was the first and last time any band I was in or led ever hired a musician off the floor of the union hiring hall.

School Band

I joined the school band that fall. One day as we were marching through Troy, the band stopped at a corner. We were marching in place, waiting for the cops to direct traffic, or whatever: *chuff*, *chuff*, *chuff*, went the student shoes on the pavement, white socks, black shoes, nondescript uniforms in the cold gray fall weather. High on the hill above the town was the silent citadel of RPI, looking down on us. I thought of all the students up there, the sons (and one daughter) of families that were depending on them ("We have sacrificed everything for you!") bent over their homework, *no questions asked*, like monks in some religion that worshipped stone, and I thought: not one more step. This is the end. I am stopping here. When they give the command to march forward, I will refuse. I will break ranks and walk down the sidewalk and never return to school: just find a shabby, grimy house on one of the streets, with nice furniture and curtains on the windows, and ask the woman to let me live there for the rest of my life. I will go to work in the five-and-ten cent store and give up jazz and certainly school and bury myself alive for fifty or sixty years. But when the command came to march, I obeyed it.

Sports

That fall, I started lifting weights, believing that if I had a body-builder's body, instead of the skinny runner's body I had, maybe that would be able to overcome the acne in the eyes of the girls. Several afternoons a week I went to the weight-lifting room in the gym. It had the same stink of never-washed socks and sweatshirts as the locker room at White Plains High. A big blond guy was always there when I arrived, methodically doing presses, French curls, taking his

time, it seemed, as though it were all planned out. He would say a few friendly words, I would reply briefly, maybe ask him a few questions about lifting, but keeping my distance because I was quite sure that, with that curly hair and friendly manner, he was queer.

I also ran cross-country in the bleak, freezing fall days. But if I enjoyed anything at all in the way of physical activity, it was the trampoline. I remembered how much I had enjoyed it at Camp Mohawk: for a few moments, you were really flying, just as in those moments after you leapt off the swing, you were held by nothing, you were turning in *mid-air*.

Dropping Out of School

Working in a Pharmaceutical Warehouse

Finally, the futility of continuing at school became so great that I dropped out, setting another low for a Franklin. I simply couldn't force myself through any more classes. Somehow or other I found a job in a drugstore warehouse, a four-story building near the riverfront in Troy. (Why don't we remember the details of such things? The names of the papers we looked in, if that's what we did, how many phone numbers we called, how many interviews we had, what we said, what other people said?) It was now late fall: the weather cold, gray, the dirty buildings looking more soot-coated than at any other time of the year. The warehouse was a relic of another age; the grimy hardwood floors, creaking, uneven, almost wavy, the aisles between the shelves dark, and yellow electric light bulbs hanging from ceiling in the illuminated areas. I was one of the order clerks. Our job was to fill orders from drugstores in the area. We each had a cart with a canvas basket. We were given a stack of IBM cards. On each was a description of an item. We went to the shelf, took the item, put it into the cart, went on to the next item. The day was spent in pushing a cart down endless wooden corridors, dark brown with grime, like those in the electronics stores. On each side were metal shelves containing everything from soap to cough syrup to aspirin to shampoo to all varieties of non-prescription drugs. The place smelled of perfume and medicine, like a drugstore.

We had to punch a time card on arriving in the morning, and on leaving for lunch, and on coming back from lunch, and on going home in the evening. The rule was that if you were more than seven minutes late in the morning, you were docked half an hour. The foreman was a thin-lipped bald guy with rimless glasses. He never cracked a smile, never said a word to anyone that wasn't directly related to work.

We were paid every Friday. The foreman went around to each employee and handed him a small manilla envelope, about three by five inches, with a flap. On the outside of the envelope were printed several lines on which were handwritten the employee's name, social security number, amount of his pay, and the date. Inside were the bills and small change adding up to one week's pay minus income tax, which in my case left $39. Those were still the days when the way you found out you had been fired was that you found a pink slip in your pay envelope.

We all knew the pay was abominable, but for those who worked there, there wasn't anywhere else in town that paid better. At least one guy had learned to make the most of it, and in fact had prospered. He was an ex-Marine, heavy-set, bald, and had worked at the place longer than anyone else. He was good with tools and so had slowly, over the years, built what others would normally buy or else do without. In fact, according to the other employees, he lived like a king, and they admired him for it. He had built himself a nice house somewhere in the country across the river, then had built himself a boat. Whatever he wanted or needed, he built.

We had a 15-minute break in the morning, a half-hour for lunch, then another 15-minute break in the afternoon. I would buy a sandwich from a hole-in-the-wall lunch counter a few doors down. During the afternoon break, we would gather on the fourth floor, sit around on boxes, and the ex-Marine would take a fresh bottle of Mennen's aftershave lotion out of stock, unscrew the top, raise the bottle of green liquid in a toast to the rest of us, and take several swallows. It contained alcohol of the type I'm not sure you are supposed to drink, but everyone admired his courage. Some of the others would pass around a bottle of Geritol cough syrup, a considerable proportion of which was pure alcohol. They all cultivated the good will of the most valuable man on the payroll, namely, the guy who had the key to the caged area, with floor-to-ceiling screen, where the prescription drugs were kept. It was amazing what respect he commanded. People were deferential toward him. He was a young guy who looked like he had only been out of college for a year or two, and always seemed a bit overwhelmed by the good treatment he was getting. But every once in a while, he was expected to reciprocate all this good will by filling an order that didn't exactly come on an IBM card.

The riverfront was near the warehouse, but it wasn't even interesting in a N.Y.C. docks kind of way. The old buildings, many falling apart, the grimy water, the gray skies, the cold — it was a place where nothing worthwhile would ever happen again, a Godforsaken place in one of the Godforsaken places in the world, namely, upper New York State. I would sometimes think of the people who lived in Troy and the surrounding area: I imagined them all as descendants of textile mill workers, all now living their going-nowhere lives. One day, a black submarine was docked alongside the cement walkway above the river near our building. I thought: so there are even surprises in the wasteland! Men were walking around on the deck, maintaining it, I suppose. I had no idea where it came from, why it had stopped on the waterfront of Troy, N.Y., and didn't ask.

Second Trip to Florida

After a month or two at the drug warehouse, I decided that my only hope lay in Florida, where I might be able to find success as a skin diver. So in the middle of winter, I hitchhiked to Miami again, this time alone. I only remember two things about the trip down: one was a waitress in a roadside restaurant who, after seeing me standing out in the cold for several hours hitchhiking, said, as I came in to warm up for a few minutes, in her wretched Southern accent, "Down here we pay for our rides." The other was being picked up by a truck driver and his partner just over the Georgia border. I had waited I don't know how many hours for a ride and wanted nothing so much as to be able to get a little sleep. They let me climb into the bunk behind the cab and I immediately fell asleep, to be awakened later by the the warm smell of oranges again. Again there were orange juice stands everywhere. In that warm, moist, climate, with the sound of the lazy ocean always nearby, the air always having a trace of the smell of oranges, I tried to find something that would give me a reason for continuing to live. Somehow or other I wound up in a training class for door-to-door vacuum cleaner salesmen sponsored by one of the big vacuum cleaner manufacturers, I think Electrolux. We were told what to say to the prospective customer as we stood in his doorway, and what to say if he seemed not to be interested, and how to demonstrate the features of the vacuum cleaner. Hopeless. I endured it for a few days, then headed back to New York State. Two incidents on the return trip remain clear in my mind: the first was standing at a crossroads near a little town in Georgia in the dead of night, no cars coming, and knowing I had reached the point from which I could go no farther. I thought to myself, "You are 19 years old, you have no place to go, no talent to accomplish the goals you have set yourself, you are alone, with your pitiful belongings, standing under a street lamp on an empty street in a God-for-

saken Southern state. There is absolutely no reason for you to go on living for one more minute, much less one more day, or year. This is the end." I stood there, gripped with an almost unbearable panic, feeling that the next moment I might well explode from the sheer awfulness of it, as you would if suddenly you knew there was no more air in the world, that you were taking your final breaths. Eventually I got a ride and I returned to my normal despair The second incident occurred in one of the Carolinas. In the evening, I had gotten a ride with a guy, possibly a traveling salesman, in his thirties. He was driving an old green Studebaker, and was going the length of the state, and possibly the next, I am not sure. As the night wore on, I sensed that he was growing tired, and so I offered to drive. We changed places, and soon I, too, was beginning to grow tired. I didn't want to admit this, and so I tried to keep myself awake in the usual ways: by blinking my eyes, shaking my head (I don't remember if the car had a radio), concentrating every second on the fact of staying awake. We were on a two-lane asphalt road. The moon was shining from above on the left. On both sides of the road was tall grass, with trees and bushes beyond. I remember the road curving onto a long straight stretch. The next thing I knew, the car was entering a portion of the road with trees hanging over it. It was at the other end of the long stretch; I had driven perhaps a mile while asleep. I looked into the rear-view mirror and saw the long straight road behind us, in the moonlight. It is possible I hadn't been entirely asleep: maybe there is an intermediate state in which the routine activity you are engaged in continues to be exercised without your being aware of it. Maybe I had been sleeping with my eyes open. I don't know. But the shock of realizing what had happened was so great that I stopped and asked the guy to take over, that I would help him stay awake. Naturally, I didn't mention a word about what had happened.

In one small town, perhaps Rocky Mount, North Carolina, I watched a white woman walking along the sidewalk, the blacks, with heads lowered, knowing their place, getting off the sidewalk while she passed, then getting back on. Now, as I write, in Berkeley, Calif., the tables have been turned, and at least some whites, when they see blacks approaching, step off the sidewalk into the street in order to avoid even the possibility of any contact.

Back at the House in Valhalla

I was living at home again. I continued lifting weights, going so far as to buy a book showing a balding middle-aged guy, with no weight-lifter's shape to speak of, doing the various lifts. I bought a set of weights and three times a week worked out in the cold playroom in the basement, with its red linoleum tiles and fake wood. I drank a quart of milk a day and tried to eat all the meat and vegetables I could.

My mother made it clear that I would have to contribute to my room and board. So I looked at ads in the *Reporter Dispatch* and got a job wiring electronic control panels at Production Research in Thornwood, which was only a few miles from our house.

Working at Production Research

I wondered about the name: why did they call it "Production Research"? There was no research that I could see going on about the production process, or about anything else for that matter. Certainly no one was taking data except as needed to build the products. I was hired as a "wireman", working with three or four other guys at a bench — it would give entirely the wrong impression to call it an "assembly line" although strictly speaking that is what it was. The product

was a control panel for jet aircraft: essentially a piece of black-coated red plastic with switches mounted on it, their terminals connected by wires.

A guy named Joe sat on my left. He had owlish glasses and a face that had been deeply pitted by acne. Perhaps because he knew that this meant he already had two strikes against him in the world, he had a friendly manner, was always ready to laugh at anything modestly funny you said. In the evening, he hung out at a bar where he drank beer, talked to his cronies.

Another guy, whose name I have forgotten (it might have been John), was overweight, with dark blond hair, and liked to do his cabling, or pretend to do it, while standing in front of the frosted glass window and expounding on whatever idle subject came into his mind. He called Arabs *Ay*-rabs, Italians Eye-*tal*-ians. Standing there with the chassis in his hands, or cutting back the insulation from the ends of wires, he would say things like, "Well, you mess with one of them *Ay*-rabs, and you're liable to get a *scimiTARR* up your bung-hole." Or, if the subject were, say, moonshiners, he would say, "Mess around with some of them, and you're liable to get a *minie ball* up your bung-hole." This was always said with the same kind of shit-eating smile that John Porter had. Or someone might ask about some grease or solder paste on the panel he was working on, and he would come over, look, shake his head, and say, "I don't know. It looks like some kind of *mung*." His equivalent for the much later term ass-hole was fuck-stick. "Hey, fuck-stick, get out of my parking place!" I think he was the first person I heard refer to a radio announcer as a "pronouncer" and the first person I heard use "Phud" for "PhD". He may have been the first I heard who, for comic effect, pronounced "calculus" as :"*cack*ulus". . "You want to figure out stuff like that, you need *cack*ulus." He may also have been the first person I heard twist the old saying, "He who laughs last, laughs best" to "He who laughs last, laughs laughs." All of these deliberately wrong but humorous terms for prestigious things, and the absurd distortion of an old proverb, were one way the lower class dulled the pain of its inferiority. Joe was always ready with a laugh at each of these expressions.

Our lead man was a stocky guy, a decent sort who allowed us to carry on this banter throughout the day as long as we once in a while delivered a completed panel to the Finished pile. The foreman, — DeAngelo, however, was another story. He was a bald Italian, slim, with never a smile, and always a watchful eye. He sat at a raised, Ben Franklin–type desk in the far corner of the manufacturing floor and tried to enforce his No Talking rule. We responded by learning to talk without moving our lips. Sometimes, hearing clearly the sound of voices from the bent heads at the bench on the other side of the room, he would suddenly shout across the room: "Hey! No talking over there!" We regarded him with good-natured contempt.

Another part of the floor was devoted to some sort of engineering and also manufacturing. The lead man over there was another Italian guy — I think his last name was Gianini — only he was fat and cheerful with always a willingness to laugh at anything which might even just verge on the humorous. He walked with a pronounced limp: after the shoe of that leg had been thrust forward, and he put his weight on it, his leg bent *backward*. Someone in our line said he had an artificial leg, replacing the one he had lost in World War II.

Every once in a while, a guy in a baggy suit and squeaky shoes, with bad posture, carrying a stack of manila envelopes and a clipboard, would walk down the length of the floor. This was Bob, the head of engineering. No one liked him.

With my morbid fear of homosexuality, I was bothered by one guy — I don't remember what department he worked in — who had a slightly effeminate way of speaking, although he occasionally spoke of his wife. He was bald in front, seemed to be concerned about appearing neat, and always pronounced the word "bastard" as "bastid".

Our job was to solder wires to various switches on the panel. There were enough of the thick wires that they had to be tied together, I suppose to make troubleshooting easier later on. I was impressed with the way each guy on the line put his individual trademark on even so humble a task as tying bundles of wires together. The process was called "cabling" — you tied the string around the bundle, then ran it forward along the cable for an inch or so, tied it around again, ran it forward another inch. What could be more boring? Yet each guy made a work of art out of the way the knots were tied, the way the cables were bent. You could tell immediately who had wired a given panel by the style of the cabling.

I had another assignment in addition to working on the line, namely, that of carrying out tests of another of our products for the Navy inspector who appeared every week or so. This product dimmed the cockpit lights in fighter aircraft. I forget why this was necessary. The product was contained in a waterproof copper box about the size of two face-to-face cigarette packs. At one end were twenty or so pins sticking out of a piece of white plastic. These fitted into a connector in a cable that ran to the test apparatus. The week's output was delivered in a cardboard box. The inspector would point to one of the dimmers, I would pull it out, plug it into the connector, then submerge it in a basin of water, and throw a few switches on the testing apparatus to have the various circuits automatically tested. If the Pass light came on, the dimmer was put with the other Accepted ones, and the inspector pointed to another dimmer in the box.

The inspector was a kindly old man, retired from the Navy, doing this work presumably to earn a little extra money courtesy of some special arrangement the Navy made for its retirees. He always seemed slightly embarrassed to be putting us in the position of having to *prove* that our products worked correctly. Little did he know what was going on behind the scenes. The truth was that many of the boxes didn't work properly unless they were held at a certain angle in the water. And so a major part of my brief training consisted in learning exactly what that angle was. I may have asked what would happen if the lights dimmed incorrectly in the aircraft, but I'm sure the reply was, in so many words, "Don't worry about it." Had an accident occurred, I'm sure I would have regarded it as the company's fault, not mine. I simply did what I was told to do — it was all part of the game of cheating the government. I am not sure, but it may have been at this time that I first heard the expression sometimes used by engineers, "Close enough for government work."

Another assignment was helping one of the engineers to test antennas. This was done on the roof. The antennas were UHF, I think — in any case, they were shaped somewhat like ping-pong paddles because they were designed to be mounted in the wings of fighter aircraft. My job was to hold one while the engineer, a young blond guy who clearly liked his work, stood ten yards or so away and held another antenna and worked the controls to effect the test.

I considered the job just another period in my long imprisonment in the world of engineering. Worst of all was that I believed that the only way out of this kind of work was to become an engineer myself. But that was no answer. So I kept going by sheer will power. I would look out of the gray windows near our workbench, and think of the nearby houses, the housewives busy inside them, the husbands working in the City or in little suburban companies like the one I was in, and I would feel as though all the air were being withdrawn from the world. A few more breaths, and it would be all gone! Riding the bus, I would ask myself as we went around the Hawthorne circle: how can such a bleak and hopeless world exist?

I looked more and more to pornography as a way of escaping the daily anguish. There was an Italian delicatessen a short way from the company, where I went three times a week to buy a meatball sandwich and milk as part of my weight-lifting diet. Somehow or other, the big Italian guy

who worked behind the counter revealed that he "could get" pornographic pictures, and asked if I would be interested. I said, naturally enough, "Well, *I'm* not interested, but a friend of mine might be." So thereafter I would buy a few of these playing-card sized pictures, which were grainy black-and-white photos. Some of them would excite me so much that I would go into the company bathroom and masturbate, fully aware of what would happen if anyone caught me. (But what kind of employee would peer over the tops of stalls in the men's room?) The only photo I remember was of a seated black woman, naked, and a white guy standing next to her, also naked, she eyeing his cock as though getting ready to take it in her mouth. I got the same buzz, the same kind of red-faced, unearthly excitement, from pornography, as I got from science fiction.

Why exactly I left Production Research I can't remember, but I next worked for Fairchild Camera, in Yonkers. Again we wiremen sat at a bench, doing our job by duplicating a finished product which lay on the bench before us. Next to me was an old, white-haired German guy who had been there for years. He was always cheerful, seemed perfectly content to come in each day, carefully labor over his work like a cobbler in a little village in the old country, then go home at night. I marveled at how he could be happy spending his days, his life, like this. The foreman had been a clarinet player with one of the big jazz bands, and he used to talk enthusiastically about my being a jazz musician.

One of the engineers I used to ride home with was clearly proud of the new car he had just bought. (It was on his car radio that I first heard Elvis Presley — he was singing "Blue Suede Shoes". Even among the relatively young occupants of the car, there was much head shaking, "They say he gyrates all over the place.") One time I got out of the plant a little early and got into the car before the engineer came. I took out a book, started to read. When he arrived, he let me know that he did not appreciate my entering his car without his prior permission. I was crushed with shame, tried weakly to defend myself, but there was no undoing an offense to an engineer's machine.

Diversions

In order not to be completely without a chance to play music, I joined an American Legion band in White Plains. It was the nadir of my musical experience. A bunch of drunks, many of them obviously queer, met several times a month to play marches, make dirty remarks at each other, and drink beer. One of the other trumpet players had big lips and made my skin crawl whenever he talked to me. I lasted only a few practices before quitting. It was hard to believe this was the same organization that had hired me to play taps on Memorial Day when I was a boy in Valhalla.

Then, somehow I was invited to play in a minstrel show orchestra in White Plains. Various middle-aged whites in blackface attempted to imitate what they thought was black speech — "Well, Mistuh Interlocumetator...". The only dialogue I remember was a lame joke that required that you know the name of a local funeral parlor. The trumpet player next to me was as appalled as I was to be performing in this shameful anachronism.

The American Economic Institute, or Economic Education Institute, I forget which, sent me stuff in the mail. I had no idea how I had gotten on their mailing list, or if they were a responsible organization. The stuff was boring and important sounding, so I thought it might be good.As always, I used the movies for escape. 1955 was the year when the French film *Diabolique* was released. The newspapers reported that the film was so frightening that members of the audience sometimes fainted. I went to see it at the Pix Theater in White Plains, sitting toward the left side some ten or so rows from the front. This was the theater where my parents had gone when I was

a child. It had a modern feeling in a thirties sort of way, with its name displayed in Moderne lettering, and its upholstered seats. It was like sitting in an upper class living room. The Pix was the only theater in White Plains that showed foreign films, so I always felt I was being properly European when I saw a film there, and that the film was of much higher quality than the American ones. *Diabolique* is about the wife of the headmaster of a boys' school who, with his mistress, kills him by drowning him in the bathtub. As the months go by, however, they began to get indications that he may be alive. For example, a photograph of the students shows a vaguely familiar form behind a window on the second floor. These ominous signs continue until, one night, the widow, unable to sleep, is walking through the dark corridors on the second floor and sees light emerging from beneath the closed door of the bathroom. She slowly forces herself to move toward the bathroom door, then open it. There, lying in the bottom of the tub, which is filled with water, is her late husband, his eyes hideously open. She screams and then watches in horror as the chest and head slowly rise out of the water. She has a heart attack and dies. We then discover this is all part of a plot concocted by the husband and the mistress.

I found the last scenes every bit as frightening as the newspapers had reported. When she first sees the body lying in the tub, my heart was pounding in my ears. Then a woman sitting near the center aisle screamed and in a moment two ushers were at her side, apparently armed with smelling salts, or so people whispered. The headmaster's wife had her heart attack as they were trying to revive the woman in the audience.

The only other movie I remember from the time was *Picnic*, which Heim insisted I see, predicting, correctly, that, like him, I would fall in love with Susan Strasberg, as well as with Kim Novak. I remember we saw it at Loew's Theater, in White Plains. The Strand, where my father had come with me that one time to see a Western, was just around the corner, in the alley.

A Test of My Future Prospects

In my desperation, I tried to find something difficult that would prove there was still hope for me. I decided to see how deep I could dive underwater. By some strange logic, I believed that, since humans are less buoyant in fresh water than in salt, it would be more difficult if I made the attempt in fresh water, specifically, in Kensico Reservoir. (I had read that the son of a politician — Bridges or Bricker [1] — had dived 60 feet in the ocean, with no tank, merely holding his breath, and had stuck his wrist inside the mouth of a moray eel without getting bitten. So maybe I could at least beat him on depth.) Perhaps my reasoning was that fresh water would make it easier for me on the way down, but more difficult on the way up, when I was shortest of breath.

I chose a place along Route 22, where, when fishing, I had noticed that the bottom seemed to drop off rapidly. There was a little peninsula with a rocky shore so I could avoid being seen by the stream of traffic on the road. I got a piece of thick, white twine 60 feet long, tied knots at ten-foot intervals, got a piece of scrap wood from the basement, tied it to one end of the string for a float, and tied a piece of metal which my father had collected to the other end for a sinker.

One day — in memory it seems to have been a weekday, though I never took time off from work — I drove the Ford or biked over to a place near the spot (I seem to remember parking the car in the gravel as the traffic whooshed by), and somehow got across to the Reservoir side of the road.

---

1. "John W. Bricker, Republican senator from Ohio...was the VP candidate on the Thomas E. Dewey ticket that lost to Roosevelt/Truman in 1944. Sen. Henry Styles Bridges (R-NH)... was minority leader of the Senate in the early 1950s." — J.S.

Carrying flippers, face mask, snorkel, the string, float and sinker, and trying to look as indifferent as I could to those in the passing cars (in the belief that this would make them regard me with equal indifference), I walked along the side of the road, waiting for a gap to occur in the traffic. Then I threw a leg over the fence and climbed over the rocks and out to the tip of the little peninsula. The wet aquatic plants, even the fresh water of the Reservoir, stank in the afternoon sun. I hated every moment of it. I pulled on the flippers, spat in the rubber-smelling face mask as usual, sloshed some water around in it, drained it, put on the mask, stuck the snorkel tube through the head band, slipped into the water and swam out as stealthily as I could, only the snorkel sticking up above the surface. In the distance, the traffic raced by. I decided to swim the rest of the way out underwater. Of course, to dive you had to stick your flippers up in the air so there would be one moment when even the most casual glance from the road would catch me in the act. But I didn't much care. I took deep breaths, in and out, hyperventilating, which skin-diver lore said would enable you to stay under longer. Then I executed the dive we occasionally practiced, namely, a kind of jack-knife under water, which would result in your legs coming out of the water only a little way. Head down into the cold stillness. The bottom was barren, brown. A fish swam lazily by in the distance. At a depth of only a few feet, I could see, in the yellow brown light, logs and rocks submerged in the mud. I swam farther out mostly underwater, in order to remain concealed from the traffic. When I came up for air, I did it gradually, rising like a submarine, facing the road to see if any cars stopped. In this way, I worked my so far out I couldn't see bottom.

I let the weight sink, watched the phosphorescent white string descend in the dark green brown gloom. I think the first couple of times the weight hit bottom, which I could tell because the string ballooned out. I swam out farther, dragging the weight, until the string went straight down. I was perhaps 50 or 75 yards from shore. I again took deep breaths, in and out, not too many, because skin-diver lore said you could black out if you *over*-hyperventilated. Then the jack-knife and, when I was all the way below the surface, kicking down, following the string. The water suddenly got icy cold. The brown gloom was changing to black green. Down, down, kicking, clenched in the freezing cold, touching the string, watching the pale yellow skin of my hands and forearms in the dimming light. The air in my lungs began to grow hot. If anything happened, no one would know for hours. I was in a place that no one thought about. (How many people, at that moment, were wondering if anyone was underwater at that precise location in the Reservoir?) Still no sign of the metal piece. Then, suddenly, thinking where I was, I panicked, turned around, kicked back up as fast as I could. I slowed near the surface so I could just stick the snorkel through, exhaled with a mighty burst of my remaining air, which expelled a blast of water from the end of the snorkel. I floated, gasping, as near vertically as I could while still keeping the snorkel out of the water. I hated the utter futility of what was I doing: I was out in the middle of the Reservoir, a failure at 19, trying to do something which, if I succeeded or failed, wouldn't make the slightest difference to anyone. But there was nothing else to do than to try again.

I rotated in the water, top of mask just emerging from the water. The traffic continued to stream by. No cars had pulled over. More deep breaths. A quicker thrust toward the bottom this time, get as much depth at the start as possible, while you still have air, a harder kick initially, stronger kicks going down, following the glowing string. Kick, don't look for knots, just keep going. I felt that I was out of air but I kept going, down, down into the brown dark green ice cold gloom. Take it by force! I kept my eye on the string. Don't think about how deep you are! Then, almost suddenly, there was the weight, swaying gently at the end of the string.

Below it I thought I could see the Reservoir bottom, but I wasn't sure. I grabbed the metal, but allowed my legs to swing down so that I was holding it with arm straight ahead, my legs

below — a little extra depth to notch the victory. My lungs felt as though they were filled with molten lead. I was ready to breathe water, anything, just as long as I could breathe something. I left the metal hanging below and kicked upward, hastened by my buoyancy, using arms and hands and feet. There was the surface, sunlight glinting on the little waves. I roared through it, my last gasp spurting the water out of the snorkel tube, then lay on the suface, gasping, knowing the tube was way too narrow to allow me all the air I needed.

When I had regained my breath, I did a slow rotation to see if I had been observed. The cars continued to race on their way. I reeled in the snow-white line, phosphorescent in the water, then stealthily swam toward shore, only the snorkel above the surface most of the time. When the barren bottom came into sight, I dove down and flew across it, looking for something interesting. Nothing: brown, shit-colored mud, an occasionaly submerged log, a yellow-brown fish.

I crawled onto shore, took off my flippers. I can't remember if I took off the bathing suit, put on underwear, or just put pants on over the bathing suit. Nothing had changed except that I had postponed the final judgment for another day.

End of Weight-Lifting

I worked out religiously, following the schedule in the book. By early summer, I had gained 20 pounds, so that my weight was now 168. One of the lifts I practiced was the leg press, in which you lie on a bench and place the bar across the soles of your feet, then raise and lower the bar using your leg muscles alone. I had done this several times, but one evening my feet lost control, with the result that the bar rolled off my soles. I was able, as I sensed what was about to happen, to give the bar a push, so that it just barely missed my head as it fell. One of the barbells left a shallow hole in the linoleum. Then and there I ended my weight-lifting career. Within two months, my weight had dropped back to its original 148 pounds.

In The Psycho Ward

My mother and I argued constantly. One evening as we were shouting at each other in the dining room, I suddenly couldn't stand it any more. There was some silverware on the tablecloth. I picked up a knife and threw it at her, but aiming to miss her, which I did. She cowered in the corner near the kitchen door.

"You fucking bitch, you fucking goddamn bitch, I'm gonna kill you, you fucking shit-face bitch, I'm going to kill you!" I threw every knife on the table at her, some of them sharp, most the ordinary, round-end knives for eating. Each time I aimed to just miss her shins. She covered her face with her arms, screamed in that hoarse, animal-like voice she had. I had the impression that, although she didn't know it, and would never admit it to herself or me if she did, she was glad this was happening, and that made me all the more furious.

I don't remember if the neighbors called the police first, or if they called Judge Caterson (one of our neighbors) directly, but the next thing I remember he was standing there, in the dining room, a tall, dignified man, trying to calm the situation. He took her aside; they talked for a few minutes. Then he took me aside, and in the nicest possible way told me that my choice was to go to the police station, or else to Grasslands for psychological observation. He may have offered me a third choice, namely, staying with her on the promise that there would be no more knife throwing. But, with her crying, moaning, howling in the den, I immediately told him I'd take Grasslands. A howl went up from her. She pleaded with me not to make that decision. I looked at her ugly tear-streaked face and knew it was the right decision.

So, a taxi was called, and I was driven to Grasslands, perhaps ten miles away, on the other side of the Bronx River Valley, up by the two smokestacks I had watched from the top of the cherry tree, and less than a mile from Mayfair Acres. A big U-shaped driveway led into the place, which was a low, official-looking, school-like, prison-like building. I had biked past the entrance years before.

Someone behind a desk asked for my name, address, phone number, age. Then I was escorted through a door, down a corridor, into a small room which contained nothing but a large, squarish bathtub. A young guy came in, and in a kind voice, told me to remove all my clothes. He turned on the water in the bath. I hung my clothes on the chair, tried to be friendly with him, asked him why I had to take a bath, and he replied, in an equally friendly manner, that it was the rules, that some people come into the place rather dirty. Also, it was a way of checking for weapons. He sat on a low stool, elbows on knees, hands hanging down, observing me as I washed, responding to my questions. When I was finished, he handed me a towel. Then he gave me a shapeless gray outfit to put on — pants, shirt, and some sort of slippers — and led me out of the room, down the corridor, up a flight of stairs, down another corridor, and into a bedroom containing two beds. Another guy was there. He introduced us, said some words pertaining to the day's schedule, and left.

I expected bars on the windows, but there was only a screen of thick wire. I talked to my new roommate: he was from Yonkers, perhaps a little older than me. He had tried to kill his wife by stabbing her in the back of her neck. She survived. They put him here. A perfectly ordinary guy, he seemed to me.

The day began at six, when one of the warders would knock on the door and say something like, "Up and at 'em." A pail of soap and water and two mops were placed at our door. Each roommate had to mop his side of the room. Then breakfast was served in a little alcove a few doors down the corridor and just across from the ping-pong room. I was introduced to some of the other inmates: an old guy back again for treatment for alcoholism — he told us later they gave him painful injections in the ass. He seemed to take it in stride, remarking that it never did any good in the past, and wouldn't now. A kid perhaps fifteen, looking shy, timid, behind rimless glasses; I was told later that he was in for being homosexual (the word "gay" wasn't used then). There were, perhaps, a dozen of us altogether, plus two warders and two nurses. We were in what I will call the Mild Ward (I no longer remember its precise name). The violent ones were on the other side of the building. Once in a while you could hear a shout from over there.

I felt quite at home. I was special, being now a confirmed member of the underworld, and had a chance to prove my excellence. One warder, a balding athletic-looking guy in his fifties, seemed particularly kind and at the same time alert about what was going on with the inmates. A fatherly sort. Not a man to be fooled, but also not a man to victimize you.

We were allowed to smoke, but we had to roll our own cigarettes. I can't remember if they gave us the tobacco or if we had to buy it. In any case, they supplied a machine which had a roll of canvas. You put the cigarette paper on the canvas, sprinkled on the tobacco, then pulled a red handle, and, supposedly, a rolled cigarette would be produced. It never worked very well, so I learned to roll my own, my goal from the start being to be able to roll it with one hand, as some cowboy hero had done in a movie. I was never able to do it. So I placed the ash-thin paper on the table, dribbled the tobacco on, spread the tobacco as evenly as I could with my index finger, then slowly rolled one edge of the paper over, rolling as tightly as possible (the tobacco immediately began falling out of the ends), rolling, faster, rolling. When I was done, I had something with a wad of tobacco in the middle, and next to nothing at the ends. Now you had to lift this carefully

to your mouth, run your tongue along the edge of the paper and then glue it to the rounded mass. Somehow it had to be made to look like a cigarette! So you gingerly tamped one end on the table, causing some of the tobacco in the middle to fall down into the thin end. When all this labor was done, you had what amounted to half a normal cigarette so lightly packed that it seemed to be gone in half a dozen puffs. Well, time to roll another one.

I immediately developed a strong attraction to one of the nurses, who was about my age, Italian, slim, with sparkling eyes and a crisp, neat, manner. She seemed to like me, despite the acne. I asked her to bring me books, which she did. The only one I remember is A. J. Cronin's *A Thing of Beauty*. I read them lying on my bed. We talked about them, and I told her about my life as a jazz musician. I also read the magazines that were lying around in the ping-pong room.

I don't remember how Heim found out about this latest adventure of mine — perhaps I called him — but in any case, one day he came to visit. He was clearly admiring of my courage. A jazz musician who had spent time in a Psycho Ward — hire him, he must be great! He had spoken to my mother; he told me how worried she was. We talked about music, records, who knows what else. I was sitting on top of the world.

I tried to reach Pat, don't remember if I did.

One of the warders was a black guy named Whiteside who had been in my high school graduating class, and was a member of a black singing group called "The Wagon Wheels". Judging by the respect he showed me he, too, seemed honored to meet me in those surroundings. He wore a white shirt and pants, white shoes, and was clearly proud of the outfit. He always waved when he passed, sometimes stopped to talk. "Hey, man, you still playin'?" "Well, not at the moment. How about you?" "Yeah, we're still gettin' jobs."

Around mid-morning, we were allowed to go out to an enclosed yard and play softball. The yard was directly below the Violent Ward, and one morning, standing in what passed for left field, I suddenly heard a voice from the second floor screaming, howling, pouring forth words which included something about the blue lightning bolts in the sun. The guy was mostly hidden behind a heavy screen of a window, but we could just make him out, his hands holding on to something like vertical bars inside. Until then, I had found nothing frightening about the other inmates, but this rattled me. The sheer animal energy, the utter remoteness from the world of the rest of us.

Another morning, as I sat down to breakfast at our table, the others were whispering excitedly about something that had occurred the night before: the shy kid had tried to commit suicide. He had deliberately broken his glasses and then cut his wrists with one of the fragments. Somehow they discovered him in time. The others at the table then began speaking with compassion about the poor kid's plight. Apparently he had been caught in some homosexual activity — by kids at school or by his parents, I can't remember — but that was that: he clearly needed incarceration of one sort or another. The consensus was that he attempted suicide because whether or not he was released, he was marked for life, and in those days he was.

In addition to the men's ward for violent cases, there was a women's ward. I assume it also had two sections. On Wednesday evenings, a film was shown which was attended by the men and women in the Mild Wards. So, after dinner, we all trooped down to the small auditorium. Catcalls and dirty remarks passed back and forth between the groups. We watched *The Racers*, a sports car racing film starring Kirk Douglas.

After a week or so, I was interviewed by the staff psychiatrist. I remember him as a small, nervous, overworked man. He asked how I was doing, I said fine, perhaps even told him that I enjoyed the place, which was true. Then he brought out a set of large pieces of cardboard, said he was going to show me a sequence of pictures and wanted me to tell him what I thought was taking

place in each. Immediately, I panicked. I had read about tests like this. Psychiatrists could tell what was *really* wrong with you from the responses you gave. This could be where it was found out that I was really queer.

What impressed me about the pictures was how depressing they were, how ominous, and how utterly remote I was from finding them to be otherwise. A picture of an old woman standing behind a seated man. A man and a woman facing each other. The fearful lack of expression made the characters' faces look sinister. I fought back that impression, fearing it was because of my sickness, and said the kind of thing I thought he wanted to hear me say: "A woman, possibly a mother or grandmother, is watching her son do his taxes. That is why he is sitting at the desk." "The couple is having a disagreement. It bothers each of them to be fighting, that is why they have such serious expressions." But I was deeply troubled by the fact that I could not see anything like happiness in the expressionless faces.

Some fifty years later, in a 2006 documentary on the animator Nick Park, creator of Wallace and Gromit, Park described his efforts to make the penguin in *The Wrong Trousers* look sinister, and how he finally decided that the most sinister effect would be achieved if he didn't give the penguin any expression at all. Anyone who has seen the film will agree with his decision.

After ten days I was released. I shook hands with the other inmates, and the warders, and promised the nurse that I would call her, which I did. We went out together several times, I thinking it enormously cool of me to be dating a nurse I had met while in a Psycho Ward. We corresponded for a while after I left for college in the fall.

One of the conditions of my release was that I and my mother see a psychologist. We wound up going to a guy on a tree-shaded street in White Plains, on the road to Mamaroneck: nice building, front walk, lawn, garden. First the therapist talked to my mother, I sitting at the end of a long room, then he talked to me. An atmosphere of softness, conciliation, healing, quiet. During my part of the session, he gave me a Rorschach test, my first. I thought that most of the blots were frightening — I saw ghosts, demons with bat-like wings, monsters ready to devour — but I knew what I was supposed to say if I was to have any chance to show that my mother was wrong and I was right, so I said I saw bunnies and bears and birds and rocky hills. Next, I was given part of an IQ test. I don't know what they were trying to measure, but he placed a wooden board in front of me that had holes for various shapes, including, as a recall, one of an elephant. I was then given pieces of wood and told to fit them into the holes. Since I knew this had something to do with engineering ability, I immediately knew I would do badly. I don't know my acutal score, because all he did as he watched me was nod and make confirming sounds, "Uh hunh...uh hunh...good. And now try this..."

I don't remember how many additional appointments we had. They had absolutely no effect on either me or my mother.

What Should I Do Now?

I had to get out of my present situation. I hadn't the slightest interest in working for a living, so I grasped at anything. I wrote a letter to Jacques Cousteau, applying for work aboard the Calypso. Amazingly, I received a civil reply from an administrator in the Cousteau Society saying that if I spoke French and had a degree in electrical engineering, they would be interested.

I remember walking down a street in White Plains, writing a long letter to Colin Wilson in my head. I had been captivated by his recently published book, *The Outsider*, not the least reason being that it was written by a real outsider, who was not associated with a university (in fact, it

was written in the British Museum while he was camping on Hampstead Heath in London). I was at the end of my rope. No one, no matter how much promise might be concealed beneath his failure, could continue to live like this. Someone had to help me. I went home and wrote and mailed the letter, received a courteous reply. I think I wro him back, a long, rambling, juvenile intellectual's letter. He never replied again.

Soon it was clear that my only option was to go back to college — any college except RPI. I sent out applications to various engineering schools. I was invited for an interview at Union College in Schenectady, where Jimmy Swan had gone. I was given several tests. The interviewer, standing in his office, looked over the results, then asked if I didn't think I should be an English major. I can still see him, a young man in a dark suit, with dark hair, trying to smile through the discouragement he was forced to hand out. Until then, I had thought about working for General Electric, in Schenectady, under their co-op program. But that remark killed all hope that they would accept me. God knows why I applied to Lehigh. It may well have been a name my mother had come across in a magazine, or that she had heard someone respectable mention. In any case, I was accepted for admission, as an electrical engineering student.

Struggling to Be a Writer

If I could get something published, there would be hope for me. I wrote a poem, my first, and sent it I sent it to the *Saturday Evening Post* and perhaps *Colliers*.

"Reflections on the Public Works Dept.

Men digging everywhere
In the midst of each main thoroughfare"

I received printed rejection slips virtually by return mail.

Working as a Riveter

Production Research fired me, or I quit, after the Grasslands episode. My next job was as a riveter in an aluminum boat factory near Thornwood. The boats ranged in length from 12 feet and were of the type called "sportsman's runabouts": they looked much like rowboats, except they were made entirely of aluminum, with an airtight flotation chamber at the bow, and were designed for use with outboard motors. The bulkheads, with pre-drilled holes, were stacked in a pile on the floor. A bulkhead was put in place inside the hull, which was mounted on saw horses. Then a guy with a rivet gun knelt on the floor at the side of the hull, while I hung down inside with a small rectangular steel block. The other guy pushed a rivet through a hole, I held the steel block against it and he pressed the trigger of the gun. A rapid *dut-dut-dut-dut-dut* followed as the flat hammer of the gun flattened the rivet on both sides of the hull, making a presumably water-tight seal. Then the same process was repeated until the bulkhead was secure. When the bulkheads were in place, we installed the seats by the same process. Eight hours a day of this. The hull was like an echo chamber, and after an hour or so, a low, steady hiss would start to fill my ears, even when my head wasn't hanging down inside the hull. I don't even remember if I ever got a chance to hold the rivet gun. Probably not, since that was one of the prestige positions. The other workers were all from the lower class, and included several Puerto Ricans. One who was a little faster, a little more self-confident, than the others — he may have been a lead man, I'm not sure — had developed a sixth sense about when the morning coffee-break buzzer would go off. Perhaps it

was just that he had synchronized his watch exactly to the factory clock, but I remember several times seeing him drop his rivet gun to the floor at exactly the moment when the buzzer went off. No, let me put it precisely: several times I saw the rivet gun in *mid flight* on its way toward the floor just when the buzzer went off. By the time the buzzer had stopped, he was already touching fire to the end of his cigarette and heading for a Coke or just lifting himself up to sit on a box or a hull or whatever. It was the same at the end of the day. The company got exactly the time they were paying for out of this guy, and not one fraction of a second more or less. There was little conversation during breaks. Everyone seemed to be thinking of what they would do when they got off work. You put in your time, got your paycheck, lived your life elsewhere.

I quit after a few weeks because I noticed that, even into the evening, the quiet hiss did not leave my ears, and I wasn't about to be forced to give up music for the sake of factory work.

Working on the Golf Course Greens

I ended the summer working as a laborer on a golf course. Not as a greenskeeper, which was a skilled job, but as a guy who had to do things like sweeping up, with a long bamboo pole, the plugs of dirt that were left on the greens by a machine that removed them in order to aerate the soil below. I kept thinking what an enormous waste of human labor, and fertilizer, and water, a golf course was. All this so a bunch of middle-class men and women could spend their weekends trying to hit a small white ball into various holes drilled into the ground.