





# Discovery - A Memoir

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*by*

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Limestone is something you get interested in and something you learn to like. And then you become part of it. You know every move to make: just how to mark it off, drill it, load it, shoot it and then you see a real straight break, and you feel good.

—McClure Stilley, a Kansas quarryman, quoted by William Least Heat-Moon in *Prairy Erth*

One cannot take advantage of his fellowman and come out ahead. It just cannot be done.

—Quintin Lomax

Prison guard: “Don’t you know that you can’t change the world by carrying that sign?”

Lone picketer, protesting capital punishment: “I’m not trying to change the world. I am just trying to keep the world from changing me.”

—Dialogue from the movie  
*The Hoodlum Priest*



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## Chapter 1

# Before “My”

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We hadn't received any more orders. Down the track we went, approaching Vaughan, which is twelve miles from Canton. Vaughan was at the lower end of a double S curve. The north switch was just about the middle of the first S, and as we roared down on it we saw two big red lights . . . it was a train not in the clear. I could see the lights, but Mr. Casey couldn't because there was a deep curve to the fireman's side. I yelled to Mr. Casey, "Look out! We're gonna hit something!" "Jump Sim!" he shouted, and these were his last words. I heard him kick the seat out from under him and apply the brakes . . . I swung down . . . and hit the dirt. When I came to . . . Mr. Casey was dead. Our engine had ploughed through the caboose of the freight, and . . . a car of shelled corn and a car of hay. When Casey's body was found in the wreckage, an iron bolt was driven through his neck, and a bale of hay rested on his chest.

Reported by Sim Webb, fireman for Casey Jones—crack passenger engineer at age twenty-six for the Cannonball Express—on the spectacular wreck of the Cannonball on April 30, 1906. The great Negro folk poet, and roundhouse worker, Wallace Saunders, began composing the ballad of Casey Jones as he wiped Casey's blood off of No. 382.

—Alan Lomax, *The Folk Songs of North America*

Grover Bougher, my mother's first husband and father of her two oldest children, was a fireman on the Santa Fe Railroad. For those not brought up on railroad lore, a fireman puts on, not out, engine

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fires; he makes and stokes the locomotive's boiler fire by shoveling coal and maintaining the locomotive's steam pressure. A fireman was commonly an apprentice locomotive engineer who served time in the cab mastering the engine's operations and learning from the engineer, who is essentially the captain of his train. This subordinate role of the fireman is clearly indicated in the exchange recorded above between the famous Casey Jones and his fireman, Sim Webb, who refers to Jones as "Mr. Casey." Sim Webb was "colored"—the polite way of identifying African Americans at that time—and may have been especially deferential for that reason.

At some point, after getting added experience in the cab as engineer, if he were proved fit for the task and were of a mind to continue, the fireman would be promoted to engineer. An engineer lived by the maxim "Get her there and make time or come to the office and get your time."

I have a letter Grover wrote to his brother, George, a private in the American Expeditionary Force in France, dated October 3, 1918, and postmarked in Newton, Kansas, on October 4. Newton, which is twenty miles north of Wichita, was a switchyard on the main line of the Atchison, Topeka and Santa Fe Railroad. (None of the cities in the railroad's name was on its main line from Chicago to Kansas City to Los Angeles.) One day later, on October 5, Grover was killed instantly in a train wreck, an accident not uncommon at the time, when his passenger train was diverted—a manual cutover switch had been inadvertently left open—onto the sidetrack, where it collided with a waiting freight engine. The accident was similar to the 1906 wreck of the Illinois Central Railroad's Cannonball Express, which killed Casey Jones.

The letter was returned to Newton, postmarked the following April, and forwarded to Wichita, where my mother had moved, with a notation by the Command P.O. that George had been killed eight months earlier, before Grover had written to him, on September 17, 1918, while fighting with the American Expeditionary Force in France. Thus, neither brother knew of the other's death. When Grover was killed, my grandfather to be, Asahel Lomax (1874-1945), had been laid up for some time with a serious leg injury caused by a railroad accident. He was an engineer on the Missouri Pacific

Railroad. The MoPac, or MOP, as it was affectionately called, never made it to the Pacific, or even west of Denver. According to what I remember from oral reports in my family from the 1930s, Grandpa Lomax was injured in a straight-track accident, not on an S-curve as in the celebrated Cannonball wreck, when a connecting rod on one of the great drive wheels broke loose and flailed up through the cab's wood flooring. He and his fireman jumped from their cab and survived. On a straight open track a train will come to a stop without an assistance from the engineer, and it's hard to be heroic inside a demolished cab. Grandpa often said that years later his leg still contained splinters from the wood floor of the engine cab.



I have not been able to document Grandpa Lomax's connecting-rod incident. I have, however, obtained a Missouri Pacific ICC report of a connecting-rod accident at Benton, ten miles northeast of Wichita, which is likely the one, since it seems to be the only such reported incident in 1918 on the MOP, and the location, injuries, and time are fully consistent with the family information. Ray State, an online documenter of railroad history and data, generously provided me with a copy of the report: "April 6<sup>th</sup> 1918 locomotive 2668 near Benton Kansas. Front end main rod strap bolt and key lost out permitting rod to drop: 2 injured." State comments, "Unfortunately, I have failed to identify 2668 as it does not appear in the 1920s number list. It may be an ancient 4-4-0 or 4-6-0 dating from before 1900 condemned after the war." He further notes: "Minor incidents of the type you describe never made it to the level of the ICC main reports. However, from April 1911 railroads were obliged to report locomotive incidents which killed or injured train crew. These were recorded by the ICC Bureau of Safety and published annually in their Locomotive Inspection reports. Until recently these lay unused by the public and in most cases uncatalogued in archives."

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Here is the text of the letter Grover wrote to his brother in the vernacular of the time, complete with missing punctuation and misspelled and inaccurately used words. It captures much of the tenor of the war years, particularly the feelings that people had toward Germans, who were commonly and erroneously called the "Dutch" or, more derisively, "Krauts." Twenty-five years later angry Americans would refer to the Japanese people as "Japs," and still later they would refer to the Vietnamese people as "gooks"; as one conflict succeeds another, what changes is the current object of derision.

*Newton, Kans*

*Oct 3<sup>rd</sup> 1918*

*Dear Bro George:*

*Will write you a letter today. We got home the 1<sup>st</sup> & we sure had some swell time there in Indiana, all of us went & of course we had some time together the kiddies sure was some "girlies" when we were out on the farm [the farm was near Paoli, where my mother was born and her father grew up] they wanted to know if you milked all the milk out the cows if you put it back in & all such questions they sure were amusing. Wish you had a been along*

*Well things in Old America bud are about the same old thing every thing fine & prosperous as ever & every body is working to there limit & now at present we have our 4<sup>th</sup> loan campaign & it will go over the top & above expectations I am sure & believe me the boys at the front are sure putting the -K- in the Kiser & it wont be long I hope till you all can come home & tell us your wonderfull experiences & how they correlled the "Dutch"*

*George have [you] been in eney active fighting yet & how do you like the noise it sure must be wonderfull believe me I wish I were there with you, Why don't you write to us more often I sure like to hear from you in fact we all do the kiddies often talk of Uncle George a soldier boy & gone to whip the Dutch you wont know those Babyies if you don't get home for long. Billyei you know will be five in the Spring & Eileen she will be 3 the 19<sup>th</sup> of this mounth.*

Before "My"

*I am now on a regular run I have 17 & 16 Newton to A. [Arkansas] City & back every day its the best job out of here in my opinion.*

*We are having fine weather here now. No cold yet & we have no stove up yet eather but must put up one soon cause it may turn cool most any time*

*I am now 5 X out for Eng Xboard [Grover is referring to his fifth time working the engine extraboard on call for any run as engineer] & will probably take the examination in the next couple mounths as they are hard up for men & we have no more promoted men hear now so you see I can nearlly have my pick of the jobs around hear.*

*Well Dad & Ma Lomax are hear with us & Dad's leg is not very much better he cannot walk on it yet he sure has had some hard luck, Ma she is going to work soon she has her a good job hear in one of the best stores, well I guess I'll leave a little for the rest to write so will say Good Bye for now & may the best of good luck be with you & all our boys over there & that the job will soon be done & you all can come home cause if every one is anxious to see their near ones as I am to see you they would all be wishing we were in Berlin now with the Kiser & his whole D---out fit hung to a phone pole Bye Bye Bud & Love*

*Grover*

*Dear Bro,*

*Grover has written everything there is to write. I am a real busy woman now. Our family has enlarged. Mother and Dad are going to stay with us all winter.*

*I put another star in our service flag yesterday. Denny [her brother] is in training at Fairmount military school. He's had a time trying to get into service somewhere.*

*As ever—Belle*

On October 5 and October 7 the *Kansan* published the following accounts of Grover's train wreck:

**Newton, Harvey County, Kansas, Saturday, October 5, 1918**

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## **FATAL WRECK OF SANTA FE TRAIN Engineer B. McCandless and Fireman Grover Bougher Were Killed**

*Santa Fe passenger train No. 17, which left Newton this morning a few minutes late shortly before 5 o'clock, crashed into a heavy freight engine, No. 1622, at Hackney, a few miles north of Arkansas City, at 8:00 this morning, resulting in the death of Engineer B. McCandless and Fireman Grover A. Bougher of Newton and Fireman C. E. Randolph of Arkansas City. It was stated in early reports that Engineer L. A. Dugan of the freight engine, of Arkansas City, and a few passengers, were badly injured.*

*As soon as word of the wreck reached division headquarters here, Supt. H. B. Lautz had a special relief and wrecking train made up and it was speeded to the scene, and some accurate information regarding the cause of the wreck and other details were expected early this afternoon.*

### **Monday, October 7, 1918 Left Switch Open and Caused Wreck**

*It is evident from information gained following investigations into the cause of the wreck of No. 17 at Hackney Saturday morning, that a brakeman of the freight crew failed to close a switch, which turned the passenger train in on a cut-over switch in such a manner as to side-swipe the big freight engine.*

*The story is to the effect that the freight had a car from which the draw bar had been pulled. The crew had set this car on the house track, which is across the main line from the passing switch. The big 1622 freight engine had finished the work and returned to the passing track, by way of the cut-over switch, which crossed the main line. The brakeman failed to close the switch behind the freight engine, and when the 1451, pulling the No. 17, came along, she shot across the cut-over switch and struck the freight engine just about the cab. It was stated that Fireman C. E. Randolph of Arkansas City, on the 1622, was just climbing into his cab when he was hit, and only fragments of his body have been found. Engineer McCandless and Fireman Bougher of Newton, on the passenger engine, were instantly killed, the former having been thrown several feet. It is a mystery how Engineer Dugan of the freight train escaped, as he was in the cab.*

Before "My"

*It was stated that the brakeman who left the switch open, was standing directly by the switch, and the instant he saw what happened, completely lost his mind, and it was necessary to restrain him and remove him to a hospital. So far as has been learned, no passengers were badly injured, though practically, the entire train was badly jarred and jolted.*

The life insurance money provided to my mother by the Santa Fe Railroad, augmented by a retail job selling shoes, guaranteed a decent but modest existence to a twenty-two-year-old widow with two girls, three-year-old Aileen and four-year-old Billye. My mother, encouraged by her mother, had married at age sixteen. When she had been dating Grover for a short time, her mother had asked, "Why don't you marry Grover?"

A woman's task was to find a husband, and earlier was better than later.

As in all earlier generations, aid to dependent children still came from family and friends, in this case from my mother's parents, and she moved into their Wichita home at 201 West Eleventh Street.

My maternal grandfather and his twin brother had been orphaned at about age five. At the time, they were living on a farm in a Quaker community near Paoli, Indiana, where they were born. Their uncle John Stout had a nearby farm and was happy to raise them. Boys were especially adoptable because farm labor was always in demand. Asahel and his fraternal twin, Ezra, were among the youngest of nine children, a family that included another set of fraternal twins. Their mother was pregnant a tenth time, but no child survived. My mother always said that it was another set of twins, but that is apparently a family myth, as the genealogical record does not verify it. But two sets of twins among ten children: No wonder the twin boys were orphaned so young! Asahel and Ezra's mother, married at twenty, died of "consumption," as tuberculosis was called then, at age thirty-six; their father died of the same cause four years later. In the end, consumption accounted for the deaths of all but four of their father's family of eleven siblings.

In 1893, when the twins were nineteen, Ezra left for Kansas. Asahel married Ella Moore in 1895 and followed Ezra to Kansas in 1896 soon after my mother was born. Initially the twins both

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worked for the Santa Fe Railroad. Asahel worked in the SF Shops in Chanute for \$39.05 per month, according to a short history written by my Grandma Lomax when she was eighty-eight. He resigned from the Santa Fe in 1903 and went to Wichita to work for the Missouri Pacific in the roundhouse (an engine repair shop containing a circular turntable that could turn an engine 180 degrees). He was promoted to fireman after three months and to engineer six months later. According to Grandma's narrative, his meteoric rise occurred because he was "one of the MOP's crack Engineers." He served as an engineer until his retirement on August 19, 1937. Engineers were much in demand during that time because of expansion in the rail business.

My grandfather was once stopped by a police officer for driving through a yellow traffic light. The officer asked, "Sir, do you know what a yellow traffic light means?" Grandpa replied, "Yes, officer. I've been an engineer on the MOP for twenty-five years; it means proceed with caution, and that is what I was doing."

Ezra was an engineer on the Santa Fe (as was the twins' older brother William). Both he and my grandfather much admired Eugene Victor Debs—"Gene," as he was known in our family—who had helped to organize the American Railroad Union in 1894 and was a prominent leader in the Brotherhood of Locomotive Firemen. The hostility between management and the railroad workers is revealed in the following recollection: When I was about twelve years old, Uncle Ezra made one of his rare visits to Wichita. He and I were sitting in the front porch swing on a beautiful afternoon. He was reading the *Wichita Beacon*, whose front page carried the news of the death of the president of the Santa Fe Railroad. Uncle Ezra, with a deadpan expression worthy of Buster Keaton, leaned over to me and said, "You know, Vernie, I would never knowingly piss on any man's grave, but if I ever were to do it accidentally I would want it to be his."



After researching Santa Fe Railroad history, I have concluded that Uncle Ezra was probably referring to Samuel T. Bledsoe, who became president of the Santa Fe in 1933 and died unexpectedly in

1939. Bledsoe had kept the railroad financially afloat during the hard economic years of his presidency, and he no doubt made many enemies in the process, including members of the Brotherhood of Railroad Engineers, such as Uncle Ezra. Moreover, he was the first Santa Fe president with a non-technical background, which would not have inspired respect from the Brotherhood. He was a lawyer.



Grandpa Lomax remained a supporter of Gene Debs for President on the ticket of the American Socialist Party until Franklin Roosevelt captured his loyalty in 1932. I still remember the portrait of FDR that he displayed proudly in his living room during the next decade. People often said that FDR saved America from socialism, but the American Socialists, particularly Norman Thomas, always claimed that he won election by stealing most of the socialist platform. That was an exaggeration, but there was much truth in the Thomas quip. I am reminded of the U.S. military commander in the Vietnam War who, referring to a city U.S. forces were bombarding, said, "We had to destroy it in order to save it."

People did not have mild opinions about FDR in those days. He was either passionately loved or bitterly hated. My friend Tris (H. Tristram) Engelhardt is a professor of medical ethics at Baylor College of Medicine and a professor of philosophy at nearby Rice University. Tris, a native German Catholic Texan, remembers that his family's priest refused to give last rites to his grandfather until he had confessed whether he had voted for Roosevelt.



In this postscript I want to note that the famous Illinois Central Cannonball wreck that produced a legendary folk hero carries a bit of tarnish for Mr. Casey: His staying with the train to stop it was heroic, but he was found solely responsible for the wreck. Here are portions of the Illinois Central Report of the accident.



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*Reports received to date indicate that Engineer Jones of the passenger train, who lost his life in the accident, was alone responsible for the accident as train No. 83 which was obstructing the main track at Vaughan sawing ["sawing" refers to sidetracking one train to let another through on the mainline or "passing" track] by train No. 26 was properly protected by [the] flagman, who had gone back a distance of 3000 feet, where he had placed torpedoes on the rail; then continued north a further distance of 500 to 800 feet, where he stood and gave signals to train No. 1; which signals, however, were apparently not observed by Engineer Jones: nor is it believed he heard the explosion of the torpedoes as his train continued toward the station at a high rate of speed, notwithstanding the fact it was moving up a grade; collision occurring at a point 210 feet north of the north passing track switch. It is also stated that Engineer Jones of train No. 1 failed to sound the whistle for the station when passing the whistle board. . . . Flagman J. M. Newberry of No. 83 . . . signaled No. 1 to stop; and although the engineer of that train had a unobstructed view of the flagman for 1 1/2 miles, he failed to heed the signals, and the train was not stopped until the collision occurred.*

*The explosion of the torpedo was heard by the crews of trains at Vaughan Station; by Fireman S. Webb (colored) on No. 1, and by the postal clerks and baggageman on that train. Fireman Webb states that between Pickens and Vaughan Stations, after putting in a fire, he was called to the side of Engineer Jones . . . and they talked about the new whistle which had been put on the engine at Memphis; Jones stated that going into Canton it would arouse the people of the town. This was the first trip with the new whistle and Jones was much pleased with it.*

*Fireman Webb states that after talking with Jones, he . . . heard the explosion of the torpedo . . . went to the gang-way on the Engineer's side and saw a flagman with red and white lights standing alongside the tracks . . . saw the markers of Caboose of No. 83 . . . called to Engineer Jones that there was a train ahead, and feeling that the engineer would not be able to stop the train in time to prevent an accident, told him that he was going to jump off, which he did about 300 feet from the caboose of No. 83. . . . He also states that had he or Engineer Jones looked ahead, they could have seen the flagman in ample time to have stopped before striking No. 83. . . . Engineer Jones . . . had a reasonably good record, . . . not hav-*

*ing been disciplined for the past three years. . . . Jones’ work up to the time of the accident had been satisfactory.*



Upon reading the full report, I e-mailed Ray State the following question: “I have noticed that the Illinois Central reports—at least for Casey Jones’s wreck—contain information on the engineer’s record; specifically, suspensions and the reason. Jones had nine suspensions, five to thirty days each for various infractions, but none for three years prior to his wreck. Is such detail common in any other reports?”

His response: “Unusually, the Casey Jones internal IC railroad inquiry report survived to be read. This was because the ballad was drafted very shortly after the incident and someone salted a copy away. Almost all RR’s had inquiries following an accident and at these the previous disciplinary record would be tabled. The ICC, in its earlier reports, would comment on these records but later considered it a matter for the railroads once the conclusion was reached. Almost none of the internal RR inquiries have survived the bonfires which successor railroads made of the companies (records) that they had acquired. . . . Discipline could be harsh. Time lost to a train was [a] serious offence and would be a disciplinary measure as was running ahead of time, speeding, failure to read orders and forgetting to take your watch on duty. A watch that was not showing the correct time was also a serious offence. . . . The operating rules were complex and there was in most cases little infrastructure to aid the engineer. Many of the accidents placed at the train crew’s door were really the fault of inadequate systems which required continuous diligence to apply.

When the weather was bad or the engine wasn’t steaming or one did not feel well then the slightest slip and a disaster was presented. . . . It is probable

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that the true position of the conditions existing in the first two decades of the 1900s will never be fully known.”

## Chapter 2

# You Can Go Home Again

---

The world stands out on either side  
No wider than the heart is wide  
Above the world is stretched the sky,  
No higher than the soul is high.  
The heart can push the sea and land  
Farther away on either hand;  
The soul can split the sky in two,  
And let the face of God shine through.  
But East and West will pinch the heart  
That cannot keep them pushed apart;  
And he whose soul is flat—the sky  
Will cave in on him by and by.

—Edna St. Vincent Millay, *Renascence*

I come from my childhood,  
as though it was my homeland.

—Antoine de Saint Exupéry

I was born Vernon Lomax Smith shortly after lunchtime in Wichita, Kansas, on January 1, 1927. Wichita is on the flat Kansas prairie, but it is peopled by souls who are anything but flat. And I come from my childhood not “as though it was my homeland,” but because it *is* my homeland. I have never had any other. In returning to it in memory, I discover myself anew.

I was the only one of three children born in a hospital. My older sisters had been born at home in Newton, Kansas. I was brought home from the hospital to the home I would live in until our 1932 move to a Kansas farm, then return to from 1934 to 1945, and return to again for the summers of 1946 through 1949.

Let me guide you through the house as it looked in those early years after I was born.

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The house at 143 N. Sedgwick Avenue is modest, on the west side of the tracks, and far smaller than I will richly remember it. Some might say that it was on the wrong side of the tracks, but I will be in high school before I fully appreciate that there are hierarchical social distinctions associated with house locations in the city, a topic that I will learn little about from my family. It is a home that will provide such warmth and opportunity for me that decades later I will still treasure it in memory, and I will anticipate with suspense driving past it whenever I visit Wichita.

The house is on the west side of the street facing east. You approach the front of the house on a paved walk. Next to the front porch on either side of the walkway are tall *Spiraea* bushes with their large semispherical clusters of white blooms. You ascend steps to a roofed porch. The porch is ringed with a wood railing, the porch swing is on the right, and the front door is in the center. Years later the porch will be remodeled, with the front steps moved to the driveway, the railing removed, and the porch screened. Walking through the front door, you enter the living room. You see my mother's old, but always-tuned, solid walnut upright piano on your left, facing north in the southeast corner. When you sit at the piano bench there is a window on your left, bathing the piano and sheet music with daylight, even on one of those rare cloudy days in Kansas, a condition that has already attracted the attention of the great entrepreneurs who would make Wichita the world center of the light airplane industry. It was sitting at that piano bench that I learned left from right.



Children are not programmed to autonomically acquire knowledge of left versus right. It is not acquired naturally (without explicit instruction) in the same way that children learn up versus down, or, after age three, to add *s* to pluralize a regular noun in English (see S. Pinker, *The Language Instinct*, 1994). Sitting on that bench, I will make the associations from which I will learn left hand from right hand—a deliberate, conscious, memorization process—when taking piano lessons. “The left hand for the bass clef,” I will think to myself, “is always by the window.”

Later, I will still identify, visualize, and remember “left” as “being on the same side as the hand next to that window,” until finally I will internalize the memory and no longer relate it to the window.



Lifting the hinged lid on the piano bench, you find it stuffed with music by Mozart, Bach, Beethoven, Stephen Foster, and Hoagy Carmichael, as well as the complete scores of *Cavalleria Rusticana* and *HMS Pinafore*, to name only a few of my favorites in that treasure chest. Decades later, when I write my memoir, I will still have a wine box full of that music. If I pull out three of those yellowing old scores and read lines like, “I am the builder, come walk with me,” “I am the very model of a modern Major General,” or, “When the deep purple falls over sleepy garden walls,” the memory of that piano bench will be fresh and sharp.

To the right on the north wall of the living room are an open ceramic, grated gas fireplace; a mantel; and glass-enclosed bookcases containing my father’s set of rust-red Harvard Classics and the complementary black-bound set, the Harvard “shelf of fiction.” My father had an eighth-grade education and has always needed to work long hours for a living. He aspired to read more, but he actually read little that was not related to earning a living. For me, however, these books will come to symbolize the immensity of the knowable, and I will keep them all my life. One of the Classics, volume 17—which contains tales by the Grimm’s, Hans Christian Andersen, and Aesop—will become severely worn and frayed, its binding shredded as a result of my frequent readings.

In my early childhood years I will think of libraries as infinite extensions of my father’s bookcase that surely contain all that is known, and I will aspire to go to college because that is where one learns everything. Nothing is unknowable. One has only to seek knowledge. I will know little and be hungry to know, but I will gradually learn that the action—all the learning and understanding—occurs in the pursuit of knowledge, and that the questions multiply faster than answers. Every answer sprouts multiple questions so that knowledge becomes an unending quest, but therein lays its charm and its challenge. I will learn that any three-year-old can force you to the outer-

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most limits of your knowledge on any topic by asking, “Why?” three times in response to any answer. It is a sobering observation that all children pass through a short “repeat-why” stage, pressing to identify the limits of what is known, before they learn to stop asking and arbitrarily accept living with less, a state that I will find troubling again and again throughout my life.



I will learn to read early and well, and Harvard Classics 17 will become one of my two childhood treasures. The other will be *Tal: His Marvelous Adventures with Noom-Zor-Noom* (1929, 1937, and 2001) by Paul Fenimore Cooper, whose great grandfather was James Fenimore Cooper, novelist of the American wilderness and devotee of liberty. I will read *Tal* to all my children, and my copy will come to have no binding left to dangle, so thoroughly will it be loved and enjoyed. My oldest daughter, Deborah, will name her son Tal (Taliesin). Sixty years after first reading *Tal*, I will conceive of the idea of having the book reprinted at my own expense, believing that no one else would have such an interest. I will procrastinate and be pleasantly surprised to discover that a third edition inspired by the author’s nephew, Henry S. F. Cooper Jr., will appear in 2001, with an introduction bearing testimony to its loyal and dedicated readership. I will have no idea that I was far from alone in loving that book. Fantasy is important to the child. Dreams are fashioned of fantasy, and out of dreams come the desire for adventure, the desire to learn, and ultimately the realization that learning to learn is what is important. In dreams and fantasy nothing is unattainable, and this is not only a model for seeking, overcoming, and coming to know, but also, and most important, a model for living.



To the left of the fireplace is an open light oak staircase that you ascend facing west. The staircase leads to a landing with a balcony that provides a view of the living room. Two or three years later, if it is 7:00 p.m., you might see my father standing in the living room, facing the balcony, singing an Irish ballad for me just after I have retired to my bed upstairs. At the balcony landing you again turn west before ascending to an upstairs landing. My bedroom, with its door always open, is on the right, while my parents' bedroom is on the left. I will be raised by parents for whom nudity in the family will not be an embarrassment to be avoided. There are no upstairs bathrooms, and the closets are very small, closely matching our clothes, toys, and "things" budget. I will learn to design and make toys much as my father learned to design and make machine tools.

If you walk through the living room entryway, straight ahead through an archway, on the south side of the house, is the dining room, the center of family Easter, Christmas, New Year's, birthday, and Thanksgiving feasts, with my sisters, Billye and Aileen, Billye's husband, Carl, and four grandparents joining my parents and me. The woman with the most to give becomes the matriarch of any family. Family celebrations will almost always be at my mother's house, which seems to provide a natural equilibrium to which everyone wants to return.

As you walk west through the dining room—much light flows in the window on your left—you see the kitchen straight ahead. In Kansas—almost anywhere in the temperate northern hemisphere for that matter—the primary living areas of the house should face the south, thereby allowing the low-elevation winter sun to flood through the windows for warmth and good cheer, but ensuring that those same windows will be shaded from the blazing summer sun high in the sky. I will eventually have children, and my youngest daughter, Torrie, and her husband, Jim, will use that principle in locating their first "earth ship" home in Colorado's San Luis valley, with a window wall facing almost south but rotated 15 degrees east to catch the light of the winter sun on the windows the moment it rises over the Sangre de Cristo mountains on a bitter cold winter morning.

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In the far right corner of the dining room is a door that leads to a hallway. Across the hall is the only bathroom in the house, and down the hall to the left is the door to the downstairs bedroom in the northwest corner of the house. After you enter the kitchen from the dining room, you see a door on your right that also enters that corner bedroom. The downstairs bedroom will at times be occupied by a sister, a sister and husband, or one of my two grandparents living with us between moves or sometimes for extended periods to save somebody money.

I will be the lone family member to escape living constantly in each other's pockets. That will shape my view of the importance of children's desire for independence, a view that will inadvertently contribute to my children's resentment. More generally in this regard, however, is the fact that I will grow up to be a loner, protecting myself from distractions, but thereby projecting an image of aloofness that was never part of what I felt inside.

In the southwest corner of the kitchen is a built-in dinette nook. I will come to love that nook, because it is like a restaurant booth with built-in wood benches. I will be nine years old before I know what it is like to eat in a restaurant.

If it is a hot summer day, the "evaporative cooler" may be set up and running in the middle of the kitchen floor, or in the dining room or living room. The cooler consists of an ancient oscillating fan with a line strung between two chairs on which wet tea towels hang. The air blowing from the fan evaporates the water from the towels and cools the room. This is an effective air cooler in 1930s Kansas, with its single-digit humidity, but the towels require frequent resoaking. You cannot help but notice that our "tea towels" are made of cotton flour bags. I will discover that when I was growing up, we were poor and were governed by the maxim "Waste not, want not."

Straight ahead, across the kitchen to the right, are a door and a stairway leading down to a landing. To the right of the door is an icebox (fifty-, seventy-five-, or hundred-pound blocks of ice are delivered regularly by the ice man, who wears a leather vest and uses ice tongs to carry the blocks on his shoulder)—which years later will be replaced by a round, coil-top Frigidaire. Thereafter, for decades, refrigerators of all makes will be called Frigidaire. From the landing

you can either go through a back door to the west or descend a staircase facing east into the basement, where I will often play with friends in inclement weather, make toys, and constantly tinker with mechanical and electrical things. This is where I will discover, or make, a miracle of sorts: I will disassemble piece by piece a discarded alarm clock that no longer operates, then put it all together again, and it will start running. As I will learn much later, it will be no miracle. My disassembly and reassembly will simply reduce for a time the coefficient of static friction in the gears and bearings.

If you walk through the rear door to the backyard, immediately behind the door screen on your right is my mother's trellis, heavy with the ripe, rich smell of honeysuckle, and buzzing with bees that will never bother to sting me. At age seventy-six I will read an entry in my mother's diary dated February 26, 1944: "Had a man working in yard; tore down the old Honeysuckle trellis—been there 22 years; hated to see it go but needed it no longer."

A few years later, while I am still very young, if it is a hot summer night, my mother may put a pallet of blankets on the thick Bermuda grass so that I can sleep, cool and comfortable, under the stars after watching the fireflies flit about and being sung to sleep by the "locusts," or cicadas. Later, when we can afford one, I will sleep in the yard on a canvas cot. In either case the cost in aggravation will be no more than a few chigger bites. Behind the trellis, with full southern exposure, is the trademark Midwestern backyard three-wire clothesline.

To the left, just outside the rear door, is a walkway to the garage, just big enough for one car, a manual lawn mower, and hand gardening tools. Straight west of the back door behind the clothesline is a chicken yard running from left of center to the right side property line. The corner gate to the chicken yard is located behind and northwest of the garage. The gap between the garage and the chicken yard provides access to a strip of ground somewhat wider than the garage and, directly behind it, space for a garden.

You will wonder why there is a large chopping block behind the garage with a big ax stuck into it. That is for dispatching one of the chickens for a Sunday or special-occasion dinner. Behind the garden, at the very back of the long, narrow lot, is an alley traversing most of

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the block. Behind the garden, on the Fourth of July, my playmates and I will play with firecrackers, using them to blast roadways for our toy cars. In the late 1930s, we will use our homemade beanies to launch lighted cherry bombs so that they explode very high in the air.

One day it will be my chore every Saturday to clean the chicken coop: scrape up the excrement on the night roosts, rake up the straw on the floor, sprinkle lye on the floor and roosts to control the growth of bacteria, and scatter clean new straw. Each day I will also gather fresh eggs from the nests, replenish the feeding trays with grain at feeding time, and fill the watering trays. I also will sometimes help my mother by carrying the basket full of damp clothes upstairs to the clothesline, and I will help my father mow the lawn until I learn to do it on my own.

## *Chapter 3*

# **Enter My Father**

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When large numbers of laborers are unable to find jobs, unemployment results.

—Calvin Coolidge

It's a truth, if a cliché, to say that fortune smiled broadly for us all when my father, Vernon Chessman Smith (1890-1954), a machinist who had apprenticed in Cleveland, Ohio, met my mother, Lulu Belle (Lomax) Bougher (1896-1957), in Wichita and was delighted to find a warm and caring woman who already had a family. They met at a dance, I know not when, and were married on August 16, 1921, three years after Grover was killed. A simple and beautiful entry in my mother's diary, dated August 16, 1944, states, "Our 23<sup>rd</sup> wedding; thought of it Monday—forgot it today. Vern remembered today. A wonderful 23 years. I love him." In this book, I will write often of my parents and what kind of people they were, but this closet diary entry, a private and unadorned personal message of affirmation, says almost everything of importance.

My mother often mentioned that she had not intended to have any more children, but my father so loved children, particularly her two young daughters, that she came to view it as unthinkable not to have one child by him. I was born some five years and four months after they were married. If I had been a girl, my name would have been Verna. Billye and Aileen often said that they never thought of my father as a stepfather.

My father had a brother, Norman (1888-1946), a wildcat driller who followed his father, a tool dresser, into the oil fields, and a sister, Izella (1892-1918), who died in the great flu epidemic of 1918 two months after Grover Bougher had widowed the woman who would become my mother. Norman had one child, Bill Smith, my only first cousin, whom I have never met.

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I have only a few memories of my first five years in Wichita. When I was nine months old, we acquired a fox terrier puppy, named after the actress Gloria Swanson. Glory was my constant companion until she died of old age when I was sixteen, and I experienced my last childhood tears. My earliest memory is of sitting in the front yard with Glory and watching passersby. When she was with me she barked at passersby; otherwise, she ignored them.

I vividly recall seeing my neighbor, Max Clark, about four or five years my senior, departing for school or returning to his home next door to ours. He, and later I, attended Martinson Elementary School, which was only a few blocks from our homes. Max became my hero and role model. He was athletic and handsome, and as a teenager he became an accomplished baseball pitcher, with a great mix of fast-breaking curves, a sinker, and a fluttering knuckleball. I was a pitcher, too, and I played in the same American Legion Baseball League, but because I was younger, I played in the Junior League.

I watched intently when Max practiced his pitches with his catcher, Ed Hullitt. My catcher was Jimmy Randall, younger brother of Jack Randall, who lived across the street.

The league often played at Cessna Field, next to the Cessna Aircraft Plant on West Second Street, about half a mile from where we lived. I remember watching Max play for his team, the Trojans. Runners were on base, and Max was in the process of drawing an intentional walk. Defiantly, he hit a homerun, but the umpire claimed that Max had reached (stepped) across the plate to hit a high outside pitch, and the runners were called back. That led to a really emotional argument.

Max joined the Air Force about 1940 and became a pilot flying the Lockheed P-38 Lightning, a very hot twin-engine, single-seat pursuit fighter. He became an exceptional P-38 pilot and was assigned a commission as an instructor during most of the war. Late in the war, however, as the fighting intensified after the Allied invasion of Europe, Max was transferred to a fighting squadron. In preparation for action he needed a gunnery training update. He was killed on a domestic practice sortie when his aircraft encountered mechanical problems and he was unable to bail out. My mother made the following diary entry on February 15, 1945: "Word came

yesterday that Max Clark was killed in training. Oh God! Will it never end?" On January 18, 1944, she had already written, "Darlene Clark's [Max's sister's] husband going across [to Europe]," and on January 24, "Word has come that Dean Vetten was killed in Italy Dec. 20; as a navigator on B24." Dean was a childhood playmate, one of my fellow rubber gun makers. On July 5, my mother wrote, "Darlene's husband has been wounded—hospitalized in Italy." The war touched every life in America for years.

My wife, Candace, and I once visited the Smithsonian Air Museum near Dulles airport. I anticipated that the museum would have a Lockheed P-38 Lightning on display. No air museum worth its salt would be without one of those sleek, beautiful flying machines. In spite of that, I was unprepared for the tears that flowed as I stood, entranced, my eyes riveted on that P-38, acutely aware that Max had died in one exactly like it sixty years earlier. The plane was less sleek, less beautiful than I had anticipated. I just stood there, alone, isolated, wondering what Max's last minutes of terror were like, until the tears gradually receded and I was ready to move on, with trepidation, to see the B-29 on display, expecting to see one of the planes that I helped to make. It was the *Enola Gay*, the B-29 that dropped the bomb on Hiroshima and ushered in a changed world. I was relieved to see that it had been manufactured by Martin, not Boeing. Some other kid had helped to make the instrument that delivered all that death and destruction. I still remember one of the news items after the defeat of Japan. Near the impact point of the bomb a person's "shadow" had been "fire-stenciled" into the sidewalk. Shit!

In January 1932, at age five, I started kindergarten at Martinson. We all liked our teacher, Miss Pontius. We looked forward to the trademark graham crackers and milk on which we snacked at recess. All I remember about lessons was being taught to "tell time." There was an old-fashioned round-faced alarm clock on the table at the front of the room. Each day Miss Pontius called a child to the front of the room to announce the time in hours and minutes. Then Miss Pontius asked where the hands would be pointing if it were noon, or 6:00, or some different time—that was our only test. There was no homework for us, as there was for my children when they were in kindergarten.

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Our car was a 1927 Oldsmobile four-door sedan. I opened the rear door one day and stepped smack in the middle of a chocolate cake that my mother had put there to keep it from sliding off the seat. My mother had planned to deliver it to Don Eaton's first restaurant next door to Lloyd's Barber Shop, near the northeast corner of Meridian and Douglas. Don was a restaurateur known to my family for many years. Throughout the 1930s my mother home-baked desserts that Don bought for his restaurant—angel food cake, chocolate devil's food cake, and Boston cream pie were the most common—for a quarter each. Don sold the cut pieces to his customers for a nickel each. My mother also baked cakes for other restaurants, but Don, her largest and most loyal customer, raved about her baking skills and spread the word to other restaurant owners. You cannot imagine the flavor of the chocolate devil's food, by far the best of the three. It had that deep, rich, "death by chocolate" shine and the spectacular taste to go with it.

A memorable event for me was the privilege of eating one ice cream cone per week. I bought it from the ice cream man—later known as the Good Humor man—but I have no memory of that designation then. Every Thursday I was given a nickel to buy an ice cream cone, and I remember sitting on the curb in the street listening, watching, and waiting anxiously. Ice cream was so good.

When I was learning to talk, I could not pronounce one of my first words, *spoon*. Instead, I said, "*Sa-poon*." My sisters would say, "Vernon, it's not *sa-poon*, it's *spoon*. Now say it," and I said, "*Sa-poon*." "No, say *sss*." So I said, "*Ssss*." "Good, now say *poon*," and I said, "*Poon*." "So now say *sssspoon*." And I said, "*Ssss-apon*." "NO!" They tried repeatedly without success.

So much for a constructivist rational attempt to teach natural language. As I think Yogi Berra should have said, "If you're not ready, you're not ready." Natural language acquisition proceeds on a neurobiological timetable as predictable as the loss of baby teeth, their replacement by permanent teeth, and the less certain production of third molars.



I still have all my wisdom teeth, in spite of suggestions from dentists, beginning with the first

appearance of my third molars at age nineteen, that they were large, would be hard to keep clean, and should be pulled. My dental adviser was always Carl Snell, longtime husband of my oldest sister, a dental laboratory technician and skilled professional who mistrusted all dentists for whom he fabricated bridges and partial and full sets of false teeth. He told me that you should never pull a healthy tooth and that he had anchored many a partial plate on wisdom teeth after front teeth had been pulled or knocked out in facial accidents. It was good advice, and to this day I insist that dentists justify any of their proposals to work on my teeth. If they suggest pulling one, I just reply that I hire them to save teeth, not pull them. I also avoid routine full-mouth dental X rays. When a dentist says its time for my “regular” X ray, I say that I am not a regular X-ray patient. When a dentist says, “The risk is negligible,” I reply, “Then why does your assistant cover the patient with lead and leave the room?” Silence. I once had a dentist who was pissed off enough to send me a letter to sign absolving him of all liability for his work because he could only x-ray me after I heard the reasons and approved his request. So he got himself fired. Some don’t seem to understand that I hire them as consultants, and I am not obligated to follow their advice. This has a cost: recently I experienced a molar decay that would have been detected earlier with X-rays; that’s one in 50 years.

No wonder the health care system is perpetually in bad economic straits. The supplier is in the enviable position of recommending what the customer should buy and then proceeding to supply it. When a third-party payer is added there is no economic equilibrium, and health care costs spiral out of control. The same principle applies to those of us involved in the delivery of public education and to escalating

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education costs, although it is less of a problem in higher education because students can choose among colleges, private and public, which provides some measure of discipline. Perhaps there is some restraint in the medical profession arising from the Hippocratic Oath, which seeks to limit the delivery of iatrogenic (physician-induced illness) treatments. The oath dictates, “do no intentional harm.” The principle that in public education and health care the seller recommends to the buyer what he should buy, and a third party—government or a regulated insurance company—pays for it tells you all you need to know to understand their economic problems, and why medical and education costs rise so much faster, year after year, than other commodities and services. Some problems do not have solutions and that may be the case here, but if these problems have solutions it surely involves reimbursing the customer directly via insurance claims, coupled with consumers taking more responsibility to become better informed. This is the equivalent of giving vouchers to the customer, in the form of payment allowances for the ailment, which, together with any additional personal funds, can be used to shop around for a doctor. Only in this way might it be possible to orient suppliers toward customers rather than toward the payer. It’s simple: He who pays the piper calls the tune.



I am in the back seat of the Oldsmobile. It’s a cold day. I roll the window down. One of my sisters says, “Vernon, it’s too cold, now roll the window up.” I do nothing. She reaches back, or over, and rolls the window up. I roll it down. She rolls it up. I sit there and the car starts moving. Shortly thereafter, I roll the window down and she rolls it up. “Dad, make him stop.” Now I sit still, but with my hand on the knob, and soon I roll it down some. She rolls it up. My hand is on the knob, and I move it down ever so slightly, watching her. I see no reaction, so I inch it down just a wee bit more, and then still more.

Here comes the outburst. “Stop it.” I stop, but she rolls the window up, and so on.



The psychologist who gave me a battery of psych tests in 1995 thought that I probably had the celebrated disease of the 1990s, Attention Deficit Hyperactive Disorder (ADHD). Maybe that is true. I have always had a substantial problem switching out of concentration mode, diverting my attention to something else, and then switching back. In time this mental “deficiency,” or characteristic, earned me a reputation as an absent father with my children—particularly the three oldest—and my former wives. I married Candace after I began the self-examination that led to the psychological evaluation. She has been tolerant enough so far to accept my mental handicap as part of what I am. Occasionally, however, I still have to remind her that she has to think of me as mentally handicapped. I became aware of this mental deficiency only because people pointed it out, reporting that I was “not there,” or that they felt they had to “serve as my social interpreter,” but I was never able to relate my experience and memory to any of those unfamiliar external reports. I do not recognize myself in those descriptions, but the psych tests do confirm that I have a switching problem. Perhaps mental hyper-focus is an unconsciously learned avoidance response to the high switching cost of ADHD brains.

I am said to have symptoms of Asperger’s Syndrome, but more on that later. When my mind is immersed in concentrated thought—mentalese, or composition mode—all my circuits seem to be sharply focused on that experiential world of mental creation, and I cannot switch out of it into something different without loss of those self-ordered connected trains of thought that make for coherence. I lose the emerged

state of whole-vision unity, and later, if I succeed in reestablishing that state of mental being, it recurs only after a considerable start-up cost in mental time and energy. Afterward, I have a lingering sense of permanent loss in recovering an approximation of the original mental state. As I write this autobiography, I return to each earlier world of experience and relive, with total absorption, the sequence of experiences within each of those self-contained worlds. I am almost completely unaware of my surroundings as I move through these long-past historical sequences, which are alive and well in my mind. But it's the same when I write or mentalize about anything else.

It is a good working hypothesis that the performance properties of every mental characteristic are realizations from a frequency distribution across such individual traits in the population. In the tails of certain jointly distributed genetic and phenotype characteristics, one observes phenomena described as Asperger Syndrome, bipolar disorder, schizophrenia, autism and so on, and all but this very small percentage carry sub-clinical manifestations of those properties to a highly variable degree. Hence the notion that there exists a stochastic order in which one of Einstein's sons is schizophrenic and his second cousin has autism. There is good evidence from twin studies that these properties have both inheritable and experiential components.

My mother, her father (according to Billye), and her youngest daughter, Aileen, were afflicted by symptoms of depression. Mother and Aileen were treated for it, and Aileen's only son was schizophrenic by his early twenties and spent almost all his life trapped in state mental institutions. I was never depressed—at least for more than three minutes—and neither, I believe, was Billye, with whom I became very close in the last twenty years of her life. I have, however, had

the feeling that I could easily become depressed if I did not begin a new project after I have just finished one. My work style is to have several projects that I cycle through, back and forth, so that if one is finished there are still others in process. Currently, for example, I am writing two books, and from time to time I spend several days away from both expanding an article or a speech that was liked well enough to motivate me to write it up in full.

Kahlil Gibran wrote, "Work is love made visible." Perhaps that is why work is an effective form of continuous therapy.



My mother often said that when I first started talking, I used the pronoun *my* rather than *I* or *me* when referring to myself. In particular, instead of saying, "Let me do it," I said, "My do it." *My* is possessive. A thing could be mine, such as "my toy truck," so why could not an action of doing or deciding be mine also? In the normal course of language development, I stopped saying *my*, but then I began saying, "Dingy do it." I started calling myself Dingy all the time, and soon everybody in the family, thinking that it was cute as all hell, started to call me Dingy. My mother put a stop to it, however, telling my smirking sisters and grandparents that she would not tolerate it and did not want me to be known as Dingy.

During the Christmas season the city always put colored lights and tinsel on a large pine tree on "The Hill" at the confluence of the south and north forks of the Arkansas River, referred to locally as the Big and Little Arkansas Rivers. (I do not know why Wichitans pronounced Arkansas *Ar-kansas*, complete with audible final *s*, when referring to the rivers and to Arkansas City, but *Arkan-sarw* when referring to the state. Speaking of that confluence, it was part of local folklore that the Indians claimed that a tornado would never strike Wichita because it was located at the junction of two rivers. To my knowledge none has, but probably no particular city in tornado alley is likely to be hit.) The tree was a great focus of my attention, and I am told that I stood in the front seat when I was two years old

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looking eagerly for the Christmas tree, and that I shouted, “Tisten-tee, daddy, tisten-tee,” over and over when it came into view.

My father’s study of voice led him to develop a considerable repertoire of songs about which I will say more later. There was a period, probably when I was between two and five, when at bedtime he sang me a song. I remember being ushered upstairs to my bedroom at 7:00 p.m. After Mom tucked me in, he stood below the balcony downstairs in the living room and sang—often it was an Irish ballad. I learned many of these songs, and I know fragments of them still.



### **Mother Machree**

There’s a spot in my heart which no colleen may own.

There’s a depth in my soul never sounded or known.

There’s a place in my memory, my life that you fill.  
No other can take it, no one ever will.

Sure I love the dear silver that shines in your hair,  
and the brow that’s all furrowed and wrinkled with care.

I kiss the dear fingers so toil worn for me.

Oh, God bless you and keep you, mother Machree.

Every sorrow or care in the dear days gone by,  
was made bright by the light of the smile in your eye.

Like a candle that’s set in a window at night,  
your fond love has cheered me, and guided me right.

Sure I love the dear silver that shines in your hair,  
and the brow that’s all furrowed and wrinkled with care.

I kiss the dear fingers so toil worn for me.

Oh, God bless you and keep you, mother Machree.



Anticipating my father's tenor voice put me in a mood to sleep in spite of my great resistance to going to bed. I remember wanting to go to bed much later than bedtime, which always interrupted something I had going. I think that set the stage for me to feel irritation when I am in deep mentalese and someone succeeds in diverting my attention. Bedtime was one of those fixed rules that my mother enforced, ostensibly because children need sleep. In later years, however, she confessed that, "Parents have to live too."

I still have Dad's word-prompts for the solos he performed, cribbed on three-by-five cards in my mother's familiar handwriting, cards that his large hands easily covered while he sang.

My father was a machinist for the Bridgeport Machine Company prior to 1932. The plant had been built in the 1880s by the Burton Stock Car Company, which made railroad cars. Eventually the Burton company closed, and the buildings were used to make the first Wichita automobile—the Jones Light Six—at the turn of the century. Jones invited Clyde Cessna to build the first two airplanes in Wichita in 1916 and 1917 as part of a promotion for his automobile. In 1927 Stearman Aircraft took over the original Burton facility to manufacture airplanes, but Stearman soon moved into new facilities and Bridgeport Machine Company moved in until April 3, 1940, when Culver Aircraft moved in. After World War II, the rapidly expanding Coleman Company used the buildings as its north plant.

The sturdy walls of "Bridgeport" housed Burton, Jones, Stearman, Culver, and Coleman in sequence—entrepreneurs all. I remember clearly the great "Buffalo" (the correct term for the animal's genus is *Bison*) billboard mounted atop the Bridgeport Plant as we turned east off US 81 North and approached the plant on the access road when my father took me to work on a weekend. I once had a treasured pocket knife with that bison symbol on it.

In 1932, my father was laid off for lack of work and became one of the many who fitted Cal Coolidge's definition of unemployment. The three of us moved to the farm near Milan (pronounced *mile-n*, not *mil-awn*—and certainly not *mil-awno*), Kansas. My two older sisters remained in Wichita. Aileen was finishing high school, living with her grandparents on north Waco Avenue, not far from Wichita

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High School North. Billye left high school and married Carl in 1931 at age seventeen. Billye's early marriage and my mother's at sixteen tell you why in my family we had four-generation portraits before I became a teenager. Eventually, I learned from my mother that grandma had urged her to marry Grover not long after they began dating. Mother's strong impression was that grandma wanted the additional freedom her daughter's marriage would give her.

*Chapter 4*  
**From City Lights to Starlight**

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A Fire-Mist and a planet,  
    A crystal and a cell,  
A jelly-fish and a saurian,  
    And caves where the cave-men dwell;  
Then a sense of law and beauty,  
    And a face turned from the clod,  
Some call it evolution,  
    And others call it God.  
A haze on the far horizon,  
    The infinite tender sky,  
The ripe, rich tint of the cornfields,  
    And the wild geese sailing high,  
And all over upland and lowland,  
    The charm of the golden rod,  
Some of us call it Autumn,  
    And others call it God.  
Like tides on a crescent sea-beach,  
    When the moon is new and thin,  
Into our hearts high yearnings  
    Come welling and surging in,  
Come from the mystic ocean,  
    Whose rim no foot has trod,  
Some of us call it Longing,  
    And others call it God.  
A picket frozen on duty,  
    A mother starved for her  
Brood.  
    Socrates drinking the hemlock,  
And Jesus on the rood;  
    And millions who humble and  
nameless,

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The straight hard pathway plod,  
Some of us call it Consecration,  
And others call it God.

W. H. Carruth, *Each  
in His Own Tongue*

Of all the persons . . . whom nature points out for our peculiar beneficence, there are none to whom it seems more properly directed than to those whose beneficence we have ourselves already experienced. Nature, . . . which formed men for their mutual kindness, so necessary for their happiness, renders every man the peculiar object of kindness, to the persons to whom he himself has been kind.

—Adam Smith, *The Theory  
of Moral Sentiments*

How striking . . . is . . . the character fostered in a people by the undisturbed cultivation of the soil.

—W. V. Humbolt, *The  
Limits of State Action*

. . . a lot of times people who can talk to animals are happier than people who can't. People were animals too, once, and when we turned into human beings we gave something up. Being close to animals brings some of it back.

—Temple Grandin and C.  
Johnson, *Animals in Translation*

After my mother and father were married, they invested some of the life insurance money from the train accident in a farm located about forty-five miles from Wichita, which was to become our sole means of survival in the difficult years 1932 through 1934. We were not a seasoned farm family—my father was a machinist, not a plowman—but the justification for taking up farming was that we

could at least grow most of our food and participate in a subsistence economy.



We became part of a reverse migration from urban to rural areas that has been discovered in migration statistics in many times and places, although the overall trend is in the other direction. For example, during the last half of the twentieth century, Alaska experienced a net out migration from the rural villages and immigration to the urban and regional centers. Essentially this is because of the greater employment opportunities in cities than in villages, where unemployment is high. But paradoxically, as I learned from Lee Husky, a professor at the University of Alaska in Anchorage, some people still move to the villages. Part of the explanation is that people reduce their dependence on wage income by engaging in hunting, fishing, and trapping. If employment conditions are hard in the cities, it's possible to move to a rural area where employment prospects are even worse, but where one can live without wages by subsisting on wild foods. My family hunted rabbits, grew vegetables, picked fruit, and canned much of our food needs for winter consumption.



The farm brought new dimensions of hard work and hard times for my parents, but also survival for two years during a time when there was no acceptable alternative. Farming near Milan was not yet hydrolyzed, electrolyzed, or mechanized, and neither was our house, which had no indoor drinking water, no electricity, no central heating, and no indoor toilet.

We lifted drinking and cooking water from a well, located thirty to forty feet outside the kitchen door, using a stand-up hand pump and a galvanized bucket. We tried to anticipate bad weather and carry enough water into the kitchen to last until better weather arrived, but in Kansas that was a crapshoot. We had a cistern that collected

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roof runoff water and an indoor table-mounted hand pump in a small pantry room off the kitchen that enabled water to be drawn from the cistern and heated for washing dishes and clothing and for mopping, but it was undrinkable because of the critters that collected in it. The cistern contained “soft” rainwater, which made good suds for washing and cleaning things in an age when detergents did not exist and the standard bar soaps needed all the help they could get. My mother always used rainwater to wash her hair. If she had to use “hard” water, as she did when we lived in the city, she added lemon juice or vinegar.

For washing (pronounced *warshing* in Kansas) clothes my mother always used Procter and Gamble laundry bar soap—which was much cheaper than soap flakes—and cut it into pieces with a paring knife. She used a washboard to scrub dirty clothes by hand, without rubber gloves. She used hand cream whenever we could afford it, and I do not recall her fingers ever looking “toil worn,” as in “Mother Machree.” We all bathed once a week, every Saturday—a strict rule, whether we thought we needed it or not—in a heavy-gauge galvanized tub, after water had been heated on the stove. In warm weather the tub of water was often left in the sun until it warmed up and then moved under one of the fruit trees so that it wouldn’t burn our hide.

All laundered clothes were squeezed damp dry through two adjustable rollers operated by a hand crank. We dropped them damp in a clothes basket, and when it was full we carried it through the kitchen to an outdoor clothes line consisting of three parallel heavy-gauge wires strung between the cross T’s atop two poles anchored in the ground. Before hanging the first batch of clothes, we had to clean the accumulated film of rust and dust off each wire. Otherwise the freshly cleaned clothes were stained wherever they wrapped around the wire and were pinched by a clothespin. We wiped each wire clean by wrapping a coarse cloth around the wire, squeezing it in a fist, and walking the twenty-foot or so length of the line. Then we folded the gunk on the cloth to the inside and did the next wire, and so forth.

It was so dry, clear, and sunny in Kansas during the 1930s that my mom’s clothes-drying routine was as follows: she filled one of the outside wires with clothes; next, moved to the middle wire; and

finally, filled the remaining wire. Then she returned to the first wire and felt the clothes. Sheets, shirts, flour-sack towels, and other such lightweight cotton items were already dry. She took them down and put them back in the empty clothes basket, by which time the pants, towels, and other cotton items would often have dried.

With no electricity on the farm, indoor lighting depended on the use of what everyone called “coal oil” lamps, which they were not. These were the lamps one often sees in old antique stores, which have been used to model electric lamps to give them a period feel—a feel that I am sure my mother could not relate to very warmly, as she worked very hard on that farm, but if there were complaints I have no memory of them.

Two decades later, I would learn that it was not coal oil at all, as my parents and grandparents always called it, but kerosene, made from petroleum, that we burned in those lamps. Still later, I would learn that coal oil derives from a process invented in the 1840s by a Nova Scotia medical doctor, Abraham Gesner, who was looking for a mineral oil to use as an illuminant. By distilling lumps of coal, he produced a clear liquid that produced a clear white light in an oil lamp equipped with a flat absorbent wick. The product was costly, but cheaper and far superior to the smoky light produced from burning whale and other animal and vegetable oils, which were commonly used at the time. He called his fuel kerosene and founded the Kerosene Gaslight Company in Halifax, Nova Scotia.



By the 1840s, the cost of whale oil for lamps had climbed as sperm whales became scarce. By 1859, more than fifty companies in the United States were manufacturing kerosene from coal, and they were thriving in the competition with more costly whale oil. A plant in Pennsylvania produced six thousand gallons a day. Even so, the demand for oil drove the price from seventy-five cents to two dollars per gallon, setting the economic stage for the first oil well in Titusville, Pennsylvania, in 1859, where the Seneca Indians and later settlers had long skimmed oil from Oil Creek. Kerosene was distilled from the oil, and

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this far cheaper source of lamp oil rapidly wiped out the “coal oil” industry. (See “Edwin L. Drake and the Birth of the Modern Petroleum Industry,” Pennsylvania Historical Museum Commission, [http://www.phmc.state.pa.us/ppet/edwin/.](http://www.phmc.state.pa.us/ppet/edwin/))

If only presidents, congressmen, the Department of Energy, and political environmentalists like Paul Ehrlich could understand that when the price is right there is no problem extracting fuel from coal, shale (the early settlers learned from the Indians how to heat western shale rock to “sweat” lamp oil out of the rock, a far cheaper source than hauling in whale oil by wagon from the coast), the sun, the wind, or fuel cells. There will be no shortages of energy over the next two hundred years any more than there have been in the last two hundred because demand will respond to price change, inducing substitution and innovations to economize on the higher-cost scarce materials. As Julian Simon’s remarkably clear scholarship demonstrates, the long-term historical trend has been down, punctuated by temporary upward spikes, in real (inflation-adjusted) resource prices as economizing technologies allow more fuel to be extracted with less effort and expenditure. The finitude of resources does not imply a corresponding finitude of the products and services yielded by those resources. As fossil-energy resources become scarcer, their rising prices allow higher-cost renewable sources—sun, wind, and tides—to become cost efficient and to be employed. As iron mines become deeper, the ore more scarce and of lower quality, the price rises, and finally it pays to mine surface junkyards for scrap to make new steel.



In place of indoor flush toilets we had the outhouse, or “privy”—sweltering hot in the summer, and icy cold in the winter, with the Kansas wind howling through the cracks—where we performed essential excretory functions, but learned to sphincter up to mini-

mize the number of exposures requiring us to brave the elements. For indoor winter nights there was, of course, a crock or pot in each bedroom with a lid so that we did not have to suffer the outdoor wind and cold at 3:00 a.m., but without heat in the bedroom we had no desire to use that pot either. At age five I had no difficulty learning to hold my urine until wake-up time in the morning. Toilet training started early and was learned well on a Kansas farm.

For me, the farm yielded memories of personal inconvenience that were no more than trivial, for the simple reason that there existed no alternative known to me. That was life, and we were there to make the most and best of it without bellyaching. I minimized any discomfort from most things that were less than the best. The farm was a great place, and it was a great time to be a kid looking for adventure. For me, it was not hardship; it was more like high-class camping out. It was a rich time of discovery.

My significant memories were those of adventure, of learning about chickens, milk cows, threshing machines, binders, haylofts, “cricks” (creeks), horses (we had just one), hogs, rats in the hog pen, fruit trees, gardens, wheat, corn and cafricorn (it looked like small white BB shots and you could pop it!), rabbit hunting, priming well pumps, Coleman Lanterns, and nights with bright stars clean down to the unobstructed horizon—a phenomenon that can only be experienced, not imagined—in a great expanse of sky that seemed uncannily like the open sea. That marvelously tender sky was punctuated and contrastingly defined by Kansas lightning storms that had for eons kept the landscape treeless, by windstorms, dust storms, and by incredible “gully washer” rainstorms in which the water poured down like “a cow pissing on a flat rock,” as the locals liked to say. At night in a lightning storm it was possible to read newspaper print during the flashes—if, of course, you could afford to buy a newspaper.

Riding in a wagonload of wheat, farm kids put handfuls of raw wheat in their mouths and chewed without swallowing; eventually the wheat turned into chewing gum. Wrigley’s three gum flavors were luxuries that we never bought with our scarce cash! The tradition of simple homegrown or homemade products—toys, foods, sundries, games, remedies—in an age of limited specialization provides an incredible prehistory of business innovation. I could not begin to

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guess how many successful “new” products, from chewing gum and skateboards to ice cream and rubber guns, were simple manufactured versions of home-industry products that generated cash when wage work was limited.

Our only cash income, except for the once-a-year skimpy wheat harvest, was from the sale of Jersey cream we made using a hand-cranked centrifuge separator. My mom often made reference to the fact that this amounted to only eighty-five cents per week! The by-product—skim milk—was fed to the hogs. We also made butter in a two-gallon jar with a hand-cranked paddle wheel. When the paddle wheel was rotated in chilled cream, butter precipitated out on the paddle, building up until it could be scraped off into a butter jar. The residue of buttermilk contained flecks of butter, and that was the standard form in which milk was drunk. After returning to Wichita in 1934, we continued to buy bulk buttermilk from the local dairy for ten cents per gallon. It was buttermilk, not milk, that we used in bread, biscuits, pie crust, pancakes, waffles, gravy, and mashed potatoes, as well as for drinking.

We raised chickens from our own nest-hatched eggs, but we also bought chicks from hatcheries when we could afford them because they had a higher survival rate. Even a short period of observation of chickens makes it clear where the term *henpecked* came from. As chicks grow, they lose the downy yellow birthday coat that makes them so cute, and they begin to grow feathers. The feathers sometimes grow erratically, and a chick’s patches of exposed skin area may attract the attention of others in the flock, which peck at them whenever the hapless chick passes by. I remember one chick whose exposed butt was pecked raw, which attracted even more henpecking. The little fellow would try to stay clear of the others, keeping his little ass turned outward toward the fence, but he was skinny and not able to eat like the others because he was constantly harassed. I rescued him, keeping him fed and watered far from the chicken yard. He thrived after I befriended him as a pet, and he followed me everywhere. I used to put him in my red wagon and haul him around until he became accustomed to my racing fast with him in that wagon. He loved it, and so did I. I remember making fast, tight turns with that chick perched on the side of the wagon, holding on

tenaciously, but never refusing to ride in that wagon, because it was so exciting.

Unfortunately, his penchant for following us into the house killed him, as one day the screen door slammed shut behind my mother with him not quite hot enough on her heels. He knew that screen door well, but he seemed to prefer living dangerously to being isolated. By this time he was old enough to harvest, so my mother cut off his head and we ate him, the pieces mixed in with those of another chicken so that no one would know which was which. We never wasted food out of sentimentality, and on a farm it was a completely natural part of life for animals to be milked, their eggs gathered, and/or their meat eaten. Dogs, horses, and cats had their own important contributions to make.

People on the farms would have been horrified, however, at the idea of eating horsemeat, a thought that occurred to me when I ate it for the first time twenty-five years later at the Harvard Faculty Club, where horse tenderloin was a treasured delicacy and a leading topic of conversation.

The farm proved to be an invigorating childhood environment with ample opportunity for daily fatherly and motherly lessons in the details of how things work—an interest I have retained throughout my life. I learned when and how to help milk cows and put them to pasture; feed the hogs, chickens, and horse (we could afford only one horse and had to borrow another for plowing, but one was enough for harrowing and cultivating); and to tag along, hold tools, and watch my father repair fences, gates, hog sheds, and barn doors, store hay in the barn loft, and shoot rabbits with his father's 1890 vintage lever-action Winchester twelve-gauge shotgun (unfortunately, he sold that gun to a collector after World War II). I remember watching my father, frustrated by many unsuccessful attempts to catch a really big bass in the creek, try unsuccessfully to shoot him with his .32-caliber revolver. Beginning about age twelve, I used dad's shotgun to hunt rabbits in the pastures a couple of miles west of our home in Wichita long before that area was urbanized.

In the meantime, I was learning from my mother about stoking a wood cook stove, cooking and baking on that stove, planting and tending a garden, and all manner of house chores. When we moved

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to the farm and ate our first rabbit dinner, we all sat down at the table and my mother asked which piece I wanted. I said, “the breast meat.” She did her best to stifle her laughter and explained that a rabbit was not built like a chicken and therefore had no breast meat. Live and learn. It was all so new at age five.

I learned to milk a cow, but not nearly as effectively as my dad could. The standard procedure is to grasp the teat by making a loose fist around it. Then you squeeze the index finger and the inside of your thumb tightly around the teat, then the middle finger and the next fingers in a smooth sequence. This creates suction in the teat duct that siphons the milk down from the storage udder. Once you get the milk moving, you maintain the flow by grasping the top of the teat between the thumb and either the index or the middle finger, slide your thumb and tightly squeezed finger down the teat, then repeat the action in a rhythm that maintains the flow. You can't lose the rhythm or you lose the siphon effect, and it's back to a restart. I could never master the two-finger rhythm protocol, and could only milk by applying the fist action, over and over, which was slow and tiring for a six-year-old, but it was an entertaining challenge trying to switch to two fingers and maintain the flow. Experts could do the routine from scratch with two fingers, but I could never make that work.

Occasionally a heifer would have a sore teat, scratched by sharp branches or barbed wire. In that case, you had to be very gentle, and sometimes you had to skip milking that teat. Otherwise, the animal could kick you, or worse—since your bruise would heal—kick over your bucket of milk (which would bring on the barn cats for clean up). Dad would guard against that—and the vagaries of a temperamental heifer that did not need to have a sore teat to get into kicking mode—by holding the bucket firmly between his knees as he milked. This was a procedure well beyond the competence of six-year-old legs, but it was one of a host of little tasks that you yearned to learn because they were what you came to identify with being an adult. Somehow you knew that the state of adulthood was all important. You saw it as defined not by age, but by all those things you could not yet do and did not yet know, but wanted to do and to know.

I forgot to mention that when milking a cow you squat on a T-stool. Dad made ours by nailing an eight- to ten-inch two-by-four vertically to the center of another one about the same length. Believe me, milking on a T-stool, bucket locked between your knees, took skill, balance, and good physical conditioning. So did fence mending, wood chopping, and plowing and planting potatoes and garden vegetables. An exercise room at that time in those parts would have been as worthless as teats on a boar.

The cows had to be milked very early in the morning. I don't know why—it was probably the need to relieve the overnight accumulation of milk before putting the cows out to pasture for the day. Anyway, it was often dark at milking or feeding time, whether morning or evening, and we used our gasoline-burning Coleman lantern. City folk have no idea at all what an incredible invention that simple device for the farm was. It extended the workday by converting night literally, it seemed, into day. A Coleman lantern casts a very bright white light in a great circle. Here is one for Ripley: "Fairmount College (now Wichita State) played the first night football game in the Midwest under Coleman lanterns in 1905" (*Wichita Century*, 1870-1970). If Coleman had a competitor making lanterns, no one seemed to know about it, because everybody wanted his lantern.

The lantern was easy to start once you mastered the technique of working the small air pump (initially manufactured separately, but later built into the fuel tank), adjusting the fuel jet, and occasionally attaching new little silk bags to the burners, which facilitated the chemical conversion of the heat-evaporated gasoline into high-intensity light energy. The old-fashioned wooden kitchen matches made by Diamond Match were essential because the stick was the perfect tool for adjusting the L-handle and the jet.

William C. Coleman brought his company to Wichita in 1901. His son, Sheldon, took the company into the camping-supplies business after World War II, a brilliant move that caused the company to grow like never before and continue an incredible record of innovation and customer service for well over a century. The widespread reputation of the Coleman name on lamps and cooking stoves was transferred by management effort into an image of premium-quality camping gear of all kinds.



Billye introduced me to Sheldon Coleman sometime in the 1960s, and I rightly felt that I was meeting one of the numerous great Wichita entrepreneurs, whose company had served as an engine of wealth creation by satisfying people's wants all over the world. This is what globalization is all about—entrepreneurship, technology, and trade. The political problem is to let this process do its thing with minimal interference from national governments, the World Bank, and the International Monetary fund. Governments, if they would only recognize it, are in competition with each other to provide stable monetary and fiscal environments, stable human (property) right régimes, and opportunities for their people. Those that best achieve these ends and allow wide-ranging economic and political freedom will have the most prosperous people. By changing its policies, Ireland has transformed its economy from Third World levels of per capita income to the eighth-highest in the world, well ahead of the United Kingdom, which is fifteenth. Astonishing changes for the better have also occurred in New Zealand and recently in China, as their governments turned from their past to allow greater economic freedom.



When we milked the cows, a cat or two always showed up for a squirt of fresh milk. My dad would usually hold a teat up on its side and, at a three- to four-foot distance, hose down the cat's face, and we would watch how the cat licked up every drop of that warm Jersey milk. Barns always have cats hanging around. We never interfered with that because cats guaranteed rat and mice control. At least since the dawn of agriculture, mice have imposed an incredible cost in grain loss to humans. They colonize in pairs and families that just keep expanding—Malthus style—to press upon the available food supply. They spread throughout the Pacific Ocean as stowaways

aboard the migration boats of the Polynesians as they eventually occupied all the inhabitable islands, and together with rats became the first two mammals of consequence to be imported into New Zealand about nine hundred years ago.

But cats take rats and mice out wholesale—they collect them the way I collected marbles. We had a black house cat named Mandy—how’s that for a little racism by contemporary standards of political correctness? When Mandy died she was replaced by another black cat, Sambo; my mother would have been mortified if she had thought any racist interpretation was implied.



My home education on racial matters was that negroes—blacks would have been an unspeakable term of derision—and all of the races of humankind were just like us except for the skin color; it was the “we are all brothers under the skin” directive. I would later learn that the most credible hypothesis, supported by archaeological and DNA data, is that all of us are descended from our common Cro-Magnon ancestors, originating some 150,000 or so years ago, who were certainly full out-of-Africa black. It is said that skin color adapted fairly rapidly by means of natural selection as populations moved into northern Europe, the diet changed, and with less daylight, light skin became essential for the generation of adequate vitamin D in the human body. (Many genes have been thought to contribute to skin color. However, *Science* 310 [2005, pp. 1782-1786] reports the discovery of a single gene mutation found to be shared by people with light skin in populations of European and African ancestry. Hence, it seems that a gene mutation that contributed to the survival of people living in more temperate and northern climates became fixed in these populations.) I wonder what those who are into strictly cultural (non-hereditary) determinism think of that. I guess the argument might be that it was culture that moved humans out of Africa,

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and certainly I believe that our ancestral sophistication in tool and weapon fabrication, which occurred as early as 2.6 million years ago, was highly enabling, but it's the genes (and their mutations) that carried our capacity to reprogram skin color to adapt to less daylight. What governs is cultural *and* biological co-evolution. More specifically, our common ancestors were probably seeking richer gathering and game preserves when they walked out of Africa, probably much earlier than 40,000 years ago, as African game animals dwindled and adapted to bipedal hunting by developing improved counter-strategies to human predation. Thus, humans had already colonized the Near East, parts of southern Europe, and Australia by more than 40,000 years ago; pre-humans left Africa even earlier.



Mandy even harvested cottontail rabbits larger than she was, and of course dragged them proudly back to the house. I don't think we cooked and ate them. Decades later, in Indiana, my dogs caught a pheasant before it could make it out from under a hedge-apple tree (Kansans sometimes called them Osage Orange trees because the Osage and other tribes used them to make strong flexible bows) to become airborne, and I rescued it from the dogs so that we could cook it for the table. Mandy also harvested rats that had colonized the hog pen, but she was smart enough to stay clear of the barn. There is a cat-world divide between house and barn cats that cannot be crossed without an incredible fight. When such a fight occurs, most people want to hightail it out of the area and not interfere. So should the house cats, but they learn that rule the hard way.

I don't quite understand the ecology of house cats' having territorial property rights that extend to the hog pen but not the barn. It might be simply because the hog pen was much nearer the house than the barn. That theory would be easy to test by creating natural experiments—examining data across farms with varying distances between house, barn, and hog pen—but I have to get on with this story.

A really memorable event for me was when my dad decided to harvest one of the big sows that we raised. The technology for dispatching and bleeding the animal was of great interest to me. In order to load hay into the barn loft on the second story there was a rope-and-pulley arrangement. The loft had sliding doors on the front and rear of the barn. One pulley was on a rafter above one door, connected by a rope across the rafters to a second pulley similarly positioned above the rear door. With a wagonload of hay below the front door, the rope was attached to a hinged, double-pronged hayfork. At the rear door, the rope was pulled tight from the pulley to the ground and attached to the horse: to pull a big fork load of hay out of the wagon, we giddy upped the horse until the load was positioned above the storage area and then released the fork by hand and returned it for another load.

The farmers adapted this apparatus, minus the fork, to slaughter and dress out the hog. With the help of neighbors, the sow was positioned outside the barn under the second-story sliding door. The rope, ordinarily fastened to the hayfork, was looped firmly around the sow's hind legs at the ankles while the other end, strung through the pulleys, was tied to the horse on the other side of the barn. When all were ready, my father shot the sow between the eyes with his .32-caliber revolver, normally kept under his pillow, and to my knowledge never before fired by him except unsuccessfully at that cagey bass. Immediately, a waiting helper with a long butcher knife approached the sow and sliced her throat deeply.

The horse pulled and lifted the sow by the hind legs until she was vertical. The blood flowed down and into a galvanized metal tub placed under the hog by another helper. In this manner the body was bled dry to yield the best meat. The hog's belly was slit from rib cage to tail and the entrails removed. The heart, liver, kidneys, and sweetbreads (pancreas) were saved. A skinning knife was used to remove the hairy hide. The head was removed, and the body was split first into two hanging sides and later into quarters, ready for home processing.

The one thing I could never eat was the "head cheese" made by removing the bullet and cooking the sow's head. After it is cooked, the meat is picked off the skull, mixed with the gelatin that comes

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from cooking the bones, and formed into lunchmeat size loaves to be cooled, hardened, and sliced for sandwiches. Ugh. “Waste not, want not” is a useful saying, but I was willing to go wanting when it came to head cheese, especially after I had seen it made.

From my mother I learned about cooking on a wood stove in the Kansas prairie where there is precious little wood—cottonwoods lined the few streams, and the pastures and grain fields were barren of trees. We supplemented by burning dried corncobs and dried, sun-baked “cow chips.” One of my jobs was to collect the chips. The early settlers had burned bison chips, as had the Indians before them. Decades later I learned that the first Americans, who most likely crossed to Alaska on the Bering Strait land bridge stretching from Siberia, burned mammoth chips, the only source of fuel on the dry, windswept plains of northern Siberia and northern Alaska, and I felt intimately and warmly connected to those ancient peoples of 15,000 years ago whose ancestors settled the entire North American continent by 11,000 years ago, maybe earlier. The date for the earliest settlement of North and South America has been pushed back because of new archaeological finds in the Americas.

While I was learning from my father about machines, animals, and crops, I learned from my mother about cooking, a process that fired my interest and imagination from the first days on the farm. Mother never discouraged me from wanting to learn about cooking. I watched her in the kitchen, and she never tired of explaining why and how her culinary products were created. The kitchen pantry was stacked with Mason jars for home canning. We had fruit trees and a large garden, and ate both fruits and vegetables year-round. It was fresh fruit and vegetables from late spring until early fall, and canned fruit, green beans and corn in the winter. Mom also canned sausage, about which everyone, visitors and locals alike, raved. I watched it all, very much aware of everything that was in process and how it was being done. She taught me simple tasks, such as how to make popcorn, heat syrup, and boil eggs, and as I grew older, she taught me to make peanut brittle and caramel. Later, I graduated to cooking the full line of breakfast items. Typically, boys bond with their fathers by learning to repair, do, and make things. It was the same way for me and my mother with foods and their preparation. It seems that my

indoor time at the farm was mostly in the kitchen, where there was always warmth and activity. This was natural preparation for my first wage work, dispensing drugstore fountain drinks, and later work as a restaurant fry cook.

I can still taste in my memory the fresh buttermilk pancakes and hot buttermilk biscuits—both made with lard—that were cooked on the top, or in the oven, of that ancient iron stove. And homemade sausage and cured bacon! If the egg basket was empty, I was sent to the chicken coop to gather eggs, some so fresh that they were still warm from the hen's body, occasionally containing two yolks, for frying or for pancakes served steaming hot, smothered in home-churned Jersey sweet butter and covered with homemade corn syrup boiled from corncobs before the latter became cooking fuel. If you are curious about two-yolk eggs, go to a Trader Joe's, if there's one near you, and buy jumbo brown eggs. A dozen may contain several that have two yolks. I am biased in favor of brown eggs, the only kind our Rhode Island Red hens knew how to lay, so I do not hesitate to pay a premium for them. Some people raised White Leghorn hens. Leghorns laid the white eggs, but somehow I imagined that they never tasted the same.

I also remember my mother many times chopping off the head of a chicken for the table. You could tell from her grim wooden face that she did not relish that chore. The protocol was to begin with a bucket of boiling-hot cistern water, carry it out to the backyard, and set it next to the three-foot-diameter sawed-off cottonwood chopping block that was about knee high. Next, we would go into the chicken yard and choose a young three- to four-pound chicken, grab him or her around the ankles, and carry the squawking and flapping bird out to the block. She would take the ax out of the chopping block with her right hand, holding the bird by the ankles and legs in her left hand and positioning it so that the neck and head were on the chopping block. This was no trivial feat because at this point the bird was wiggling and squawking and shifting and bobbing its head all over the place. At some point she took aim and down came the ax, off came the head, and she dropped the bird on the grass, where it flopped around all over the place.

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An alternative method required no ax. One simply grabbed the bird's head in your right fist and whirled the bird clockwise like a sling, twisting off the head. My mom thought that was completely disgusting and refused to learn it. No matter which procedure one applies, it's necessary to wait until the flopping bird's body comes to rest—it always seemed like an eternity to me—before plunking it neck first down into the hot water, immersing the entire carcass in the water, and dunking it up and down like a doughnut. The hot water loosens the feathers, and then it's time to begin plucking them out until the bird is naked to the skin. If it's a Rhode Island Red the chore is pretty much over at that point, but if it's a Black Australorp the skin has black feather follicles that do not look very appetizing and must be squeezed out like blackheads. That was all scummy business, to say the least, but it never seemed so at the time, as it was all part of a typical day on the farm.

The benefit was crispy fried (breaded with flour and buttermilk) or roasted chicken, sometimes with buttermilk dumplings, but always with buttermilk mashed potatoes and my mom's incredible buttermilk gravy; there was buttermilk everywhere.

Times have really changed. Try ordering a glass of buttermilk in a restaurant. For starters, the waiter or waitress may not even know what the hell it is. Suggest that the cook may have a cooking supply. You probably won't succeed, but if you do they will confer to figure out what to charge you for it. When you get it, it will not be buttermilk at all. It will be regular milk that has been cultured and is called buttermilk, but is not nearly as tasty as the real thing. Good luck!

Yes, my parents' lives were hard and their workdays were long, but for a five- to seven-year-old, every new day dawned with fresh excitement. I didn't have a care in the world in those days, and there was so much to learn and witness. Years later when I took up hiking and camping it brought back memories of the farm days, which did indeed seem like upscale full-time camping out.

Our farm house had three rooms downstairs: a kitchen, an adjoining sitting room (today called a family room) with a potbellied wood- and cow-chip-burning stove and to the east a living room with a front porch and a swing. The kitchen and porch faced south, with the porch to the east and the kitchen to the west on the other

side of the porch wall. Almost every day we had that warm Kansas winter sun streaming into the kitchen to help heat the first floor. Upstairs were two bedrooms with no heat, and believe me they were as cold as a witch's teat, as I learned early to say. In the winter my mother placed bricks under the potbellied stove on cold evenings. When they were thoroughly heated, she wrapped them in towels, took them upstairs, and put them under the covers at the foot of my bed. When the bed was warmed up for my feet, I would be taken up the narrow staircase to get into that toasty warm bed. My bed had so many blankets and comforters on it that when I rolled over in the night I had to hold the covers up with my hands so I could turn my body over underneath them. But was it ever cozy—warm, comfortable, and secure—under that load of covers. To this day, I prefer to sleep in a cold room with lots of covers.

When walking on the path to the barn, due west from the house, you passed between the chicken yard on the north and a storm cellar on the south. (This is roughly where my Grandpa Smith caught up with me at a dead run after I blew dried navy beans at him through my homemade blowpipe and hit him in the head—after being warned twice to lay off—and he blurted out, “Vernie, damn it, you did that on purpose.” Indeed, I had. I could hear the daybed springs squeak in the dark northwest corner of the sitting room as he bounded off it fast and hit the ground running. I knew that I was in deep shit, and I ran out the kitchen door, headed for the barn.) The storm cellar on every Kansas farm was a small, L-shaped dugout cave covered with a homemade slat door slightly inclined above the flat ground. Under the door was a short staircase leading underground. It was cool in the summer and warm in the winter, relative to the above-ground temperatures. We stored home-canned fruits, veggies, and sausage on the shelves. We had no problem with invasions by rats or other varmints because we had two very efficient house cats—Lady and Mandy—that were always up for a fresh kill as far west as the storm cellar and as far south as the hog pen. Mandy was the expert; she provisioned Lady, who usually just waited until she returned from the hunt and expropriated Mandy's kill. Mandy did not mind, as there was plenty of game for both, and the thrill was in the stalking and capturing, not in the eating. The cats avoided the chickens.

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Occasionally an unconditioned cat would try to prey on a chicken or chicks. When that happened we killed the cat; its genes had no value for humans, so we stopped the lineage right there. Chicken-killing cats could not be tolerated.



Lady was Mandy's mother. The two of them always got pregnant at the same time and gave birth within a day or two of each other. They were assigned separate boxes in which to whelp and care for their kittens, but the assignment was never accepted. Within a few days of having her litter, Lady would carry her kittens, one at a time, from her box to Mandy's box. We tried to discourage her behavior by placing the boxes in separate rooms, but to no avail. Lady's maternal instincts were short-lived, and she was off for adventure. Mandy always nursed both litters and did not seem to mind it at all. Both cats were characters. Lady had a novel way of opening the screen door in the summertime to go outdoors. She raced through the house at a dead run, became airborne as she approached the door, hit the screen four to five feet off the floor with her full body weight, and clung with all four sets of claws to the screen. Her momentum (mass times velocity) opened the screen door, and she dropped to the ground running and was out of there. It's called cat folk physics. I don't recall whether she ever tried it when the screen was hooked! Actually, pulling that prank occurred to me, but I very much respected animals. Grandpa Smith, however, was different!



It was in that storm cellar that we took refuge if we thought tornadoes were in the air. There were no tornado watches and no broadcasts, and in any case no one had radios. There were no warnings, but we could feel the tension of tornadoes in the air. We could sometimes see them to the west and south as they snaked down

from a squall line, with bright light and clear sky beyond the line, black boiling clouds overhead and behind, and faster-moving white clouds just below. Normally, tornadoes snaked back up to disappear into the squall line. I never saw one that came to earth, except in the Judy Garland movie.

When tornadoes were in the air, we were up against the one thing that was really, really, scary. We kids could see it on the faces of the adults, who pretended that they knew that everything would be OK. Fortunately, it always was OK in the two years that we lived there.

If you want to get a sense of it, and you just happen to be passing through Topeka, Kansas, go to the Capitol building and enter the main floor rotunda. There you will find the magnificent John Stuart Curry mural circling the room, depicting the essence of Kansas and its history. In one scene you will see the tiny, insignificant figures of a farm family, clutching the children, rushing from their house to the storm cellar. Behind them is an immense, towering cone snaking down into a twister from a sky of black clouds above.

In the autumn of 1932, at age five, I took my place in the first grade alongside more seasoned farm children in a classic rural one-room schoolhouse. On the first day I showed my city-boy naiveté. Someone was pulling a binder (a mowing and bailing machine for wheat) down the road with a horse, and we all rushed to the window. I said, “Oh, look at the threshing machine,” and a little girl with long blonde curls next to me fainted, collapsed to the floor, and had to be revived with cold well water. I learned to keep my mouth shut until I knew one piece of machinery from another, because I thought that getting it right was so important that people would faint if you failed.

A neighbor, Mr. Hemberger, who was part of the local German community, had the distinction of being able to speak, read, and write English, and he knew arithmetic, so he was deemed fully equipped to be our grade-school teacher. It was a wise decision, I think, although my mother was always a bit irritated when he used the word *ain't*, a completely grammatical contraction of which English has many; Mom was something of a language maven, as Steve Pinker would say. Each morning my teacher-neighbor faced rows of old-fashioned desks with lids that could be raised to take out books, notes, and

*Vernon L. Smith*

paper, which were always stored there. “Homework” was farm work, as we were never asked to take home any schoolwork. After all, what the hell was the classroom for, if formal education could not be fully and completely accomplished there? A quarter of a century later, when my own children were in public school, I found myself naturally resistant to the concept of homework in the first grade. Of course, I had books that I read at home—*Tal* and Harvard Classics No. 17—but that was purely for personal joy.

The first row on Mr. Hemberger’s right as he faced the class, where I sat, was grade one, the second row grade two, and so on for all the grades. I sat in the front seat of row one because I could not see the blackboard—no one knew yet, and it would be two years before anyone knew, that I was myopic, and nothing written on that blackboard had any meaning for me. After some first-row recitation every morning, and left with an assignment, I had the opportunity to listen in on the second- and third-grade recitation lessons. Those were the grades seated closest to me.

As I later became aware, this classroom implemented the original “progressive system,” in which you were part of a single seamless community consisting of all elementary grades. At the end of the first year and grade one, Mr. Hemberger gave me a note to take home to my mother. The note addressed to Mrs. Smith went immediately to the point, stating unceremoniously, “Vernon can read the second-grade reader and therefore next year he will be in the third grade.” There were of course only three subjects: reading, writing, and arithmetic. What else was there to learn? Reading seemed to be the litmus test; if you were less strong in arithmetic or writing, the next year you could participate along with those in the row on your left before Mr. Hemberger got to your row. The whole purpose of this management style was to move each person along at her own pace of accomplishment, and get her through school and into farm work, where she could be useful to herself and her family.

I understand that the earliest achievement tests showed high performance in Kansas and Nebraska because of these rural schools. It’s no wonder to me that Kansas bred the Eisenhowers, William Allen Whites, Beeches, Cessnas, Garveys, Kochs, and so on by the hundreds, maybe thousands.

I should not leave the farm without saying something about the harvest, and about in-kind personal exchange, or reciprocity, which is the substance of the second quotation from Adam Smith that opened this chapter. Personal exchange is so much a prominent part of the unconscious socioeconomic folk fabric that it would be decades later before I and my co-authors would uncover it by means of a constructivist reciprocity reinterpretation of experimental findings in two-person extensive form games.



As I recall events and experiences in writing this memoir, I see each episode through the eyes of my understanding of prehistory, institutional change, and experimental learning. Although the memories of my experiences are refreshed in the context of the earlier time and circumstances, the intervening years have given them new meaning for me, and I will not speak or write of them unvarnished by the mind's eye as transformed by what I have understood since I had those experiences.



I have already reported that we had only one horse because we could afford only one. When we “borrowed” a second horse because we needed two to plow, it was part of an exchange, even if it was not explicitly or contractually recognized. Borrowing entailed an implicit promise that you would return the favor in some appropriate way. For example, my dad might spend a day helping the owner of the borrowed horse to install new windows in his house or do repairs on his barn. When we returned the neighbor's horse, we were likely to say something like, “When can I help you with those windows?” We acknowledged a debt, if in no other way, by the generic refrain “I owe you one.”

In 1932 precious few farmers in Kansas could afford mechanized farm implements. This was before the combine, and therefore mowing the wheat and binding it into sheaves was an operation distinct from threshing it. A binder such as the one I miscalled a threshing machine on that fateful first day in first grade was a mowing machine that cut

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the wheat two to three inches from the bottom of the long stem with the “head” of grain at the top. The long stems fell onto a conveyor belt. The wheat collected at the end of the belt, where binder twine from a spool was threaded through a mechanism for tying a cylinder a foot or so in diameter of accumulated wheat stems (imagine a big bouquet of flowers tied in the middle). The tied sheaf then rolled off the end of the conveyor onto the cut field stubble. Another man or two followed each binder and stacked sheaves of grain vertically into shocks, with the grain heads up. The shocks stood there in the sun for a few days to reduce the moisture content of the wheat. (Can you visualize the Grant Wood painting of wheat shocks standing in the field?) The price we received at the storage elevator next to the railroad track in Milan varied inversely with the moisture content of the grain. Elevators don’t like to buy water at the price of Kansas No. 1 hard red winter wheat, the premium grade that yields semolina, so richly and deservedly prized for fine Italian pasta.

When the grain was dry and fully ripened, it was threshed, an operation that separated the wheat grains from the chaff. The threshing machine was stationary; the sheaves were hand carried to it with a pitchfork and then pitched into the thresher. After a time the threshing machine was moved to a new location in the field. Next to the thresher was a farm grain truck or horse-drawn grain wagon, and the threshed grain was blown from the end of a large pipe into the truck or wagon bed. When the bed was full, the grain went to the Milan elevator while a new one was filled.

The harvest was a labor-intensive process even with those machines. In our area, only the patriarch of the Hemberger family owned a thresher. He provided the machinery for our harvest, and in return my father and the neighbors provided labor to help with his larger harvest. Accounts were balanced with extra labor or a share of the wheat or some other in-kind transfer. Money might be used as a standard of value to arrive at a wage (\$1 per day was common) or the rental value of equipment on an hourly basis, but it was rarely used as a medium of exchange among neighbors. Everyone conserved scarce cash for imports of gasoline, kerosene, seeds, and manufactured goods. Even flour might be milled for us and bought with some of

the grain. No one seemed to have money after paying for essentials; very few things were “store-bought.”

The memory of all this makes me more than a little skeptical of national income accounts that measured national product at market prices or at factor cost, especially during the 1930s. In those days, people traded wheat equivalents for flour, and labor for the rent of “borrowed” assets: harvest labor for threshing machine hours, carpentry for horse days. In the 1940s there was more cash around, and all these patterns would have been influenced, with money as an exchange medium replacing many bartered deals. Thus, previously bartered exchanges would have started to show up in the measured accounts for national income.



The wheat combine merged the operation of mowing and threshing. When the combine was introduced after World War II, it was expensive and family farms were still the standard 160-acre quarter sections privatized under the Homestead Act. The labor and equipment savings of the new technology, however, completely dominated the old, and the ecologically rational response was the highway convoy train of trucks carrying combines. Contractors traveled ahead and lined up farmers to perform the harvest for less than it would cost them to do it as we had done it in 1933. The old thresher-binder harvest culture was wiped out as surely and as quickly as was the coal oil industry after Colonel Drake’s Pennsylvania petroleum discovery three quarters of a century earlier.

The highway combine trains started in Texas in April and May, harvesting the earliest, most southern hard red winter wheat, the premium wheat for high-quality flour and the best pasta. The combine convoys moved north into Oklahoma, then Kansas (June harvest), Nebraska, South and North Dakota, and finally across the border and into Saskatchewan in August and September. In Nebraska and to the north the fields are yielding to soft summer wheat

*Vernon L. Smith*

as the winters become more severe and hostile to planting in the autumn and harvesting in the spring and early summer. Winter wheat must be planted in the autumn, have good germination, and be sprouted before cold weather arrives. The wheat grows intermittently all winter with warm spells, but is hardy and weathers frost and freezing if the freeze is not sustained. In the northern frozen-ground communities farmers plant in the spring or early summer, and harvest in the late summer or early autumn.

I worked on a land-clearing project thirty miles north of Carrot River in Saskatchewan, Canada, in the summer of 1946. The land, never before farmed, was being cleared of all “bush” by Canadian veterans in preparation for planting wheat. That far north it was not possible to plant until June, but the wheat grew incredibly fast in the long daylight, and the ripe grain was ready to harvest about ninety days later. This was flat bush country, potentially rich in agriculture once the bush and the wolves were cleared, and the heavy soil was plowed and planted with soft summer wheat.



In our part of Kansas in 1932, the much smaller corn harvest—we had none on our farm, as it was hard enough growing wheat—was not mechanized. A man in a horse-drawn wagon, with a high side and a low side, reined the wagon slowly along the rows of corn. Two or three men walking parallel on the low side of the wagon husked the corn; that is, they stripped each ear off the stalk, tore off the dry husks, and threw the naked ear of corn into the wagon. The opposite side of the wagon was high to keep the ears from being thrown over the side. Corn-husking tournaments were run as social events. The winning wagon team weighed in with the most husked corn at the contest finish time.

For a six-year-old in 1933, the excitement was not only in watching all these procedures in action, but in joining eighteen or so people for breakfast or lunch in June for the winter wheat harvest (I was

*From City Lights to Starlight*

far more into big social events than I am seventy plus years later). There were pancakes, bacon, eggs, biscuits, and homemade bread sandwiches to be eaten, and water to be pumped and carried to thirsty men—that was the one chore that I or any other young farm kid could do.

*Vernon L. Smith*



*1927 Vernon, Mom*

*From City Lights to Starlight*

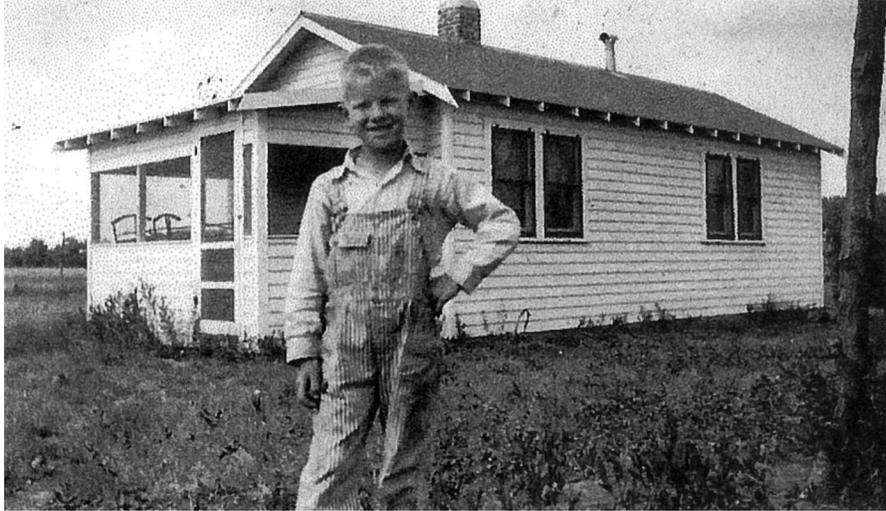


*1928 Vernon on piano bench*

*Vernon L. Smith*



*1930 Dad*



*1933 Vernon on farm, with house that Grandma Lomax built*



*1937 Grandpa Lomax (3rd from left) with crew of the MOP's engine # 1478*



## Chapter 5

# City Lights Again

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This division of labor . . . is not originally the effect of any human wisdom, which foresees and intends that general opulence to which it gives occasion. It is the necessary, though very slow and gradual, consequence of a certain propensity in human nature which has in view no such extensive utility; the propensity to truck, barter, and exchange one thing for another.

—Adam Smith, *The Wealth of Nations*

. . . the same age, which produces great philosophers and politicians, renowned generals and poets, usually abounds with skilful weavers and ships-carpenters.

—David Hume, *Political Essays*

In 1934 my father returned to the Bridgeport Machine Company, first for alternate-week half-time work, and subsequently, full-time work. This was fortuitous, as we lost “ownership” of the farm to the mortgage bank—with which everybody had always shared ownership—because we were unable to meet the loan payments. We would have had to move back to Wichita, whether Dad had employment or not. We would also have lost our home in Wichita, but my parents recognized this possibility and earlier had temporarily deeded the house to Grandpa Lomax to keep it from being added to the default obligation, so the issue never arose. That was probably some kind of horrible criminal offense.



Sixteen years later I would have summer employment at the Bureau of Business Research at the University of Kansas. I recall doing research on land-title holdings in western Kansas during the 1930s. We were constructing maps coded with shadings

and stripes to identify classes of owners. I remember that prominent on these maps were large holdings by financial institutions, particularly in western Kansas. People lost their farms to foreclosures, but the market value of the land was commonly less than what was owed on the mortgage and thus there were many insolvent banks, many of which also experienced a liquidity crisis. It would be at Kansas University that I would first learn of the bank crisis caused by a rigidly and inappropriately structured Federal Reserve System in which it was thought that the central banks had to tightly rein their reserves and those of the member banks when the latter were losing reserves to customer withdrawals. The central bank, however, cannot fail like a private bank because it is the lender of last resort. It can create the deposit funds needed to strengthen member bank reserves. It did the opposite, which leveraged even more the private bank incentive to retrench and protect reserves. Consequently, much of the inelasticity—indeed, perverse elasticity—of the banking and monetary system was the direct consequence of inappropriate rules caused by misunderstanding of credit creation and the principles of central banking. It was another in a long list of unintended disastrous consequences of inappropriate public policy. Capitalism and greedy profit seeking by bankers would be blamed rather than the ignorance of policymakers and their consultants. The knowledge gleaned from that experiment was costly indeed.



We were returning to a world of impersonal exchange. As indicated in the quotation from Adam Smith, far more of our needs would be met by store-bought goods in a world that would gradually emerge, reinvigorated, from the Great Depression.

Taking inventory, my parents now had nothing left of the original Santa Fe life insurance asset. Of course, losing the farm just

confirmed my mother's political commitment to socialism, but my father, certainly disappointed, seemed to take it in stride. At some point in the 1930s, I remember that Dad flatly refused to apply for public employment in the WPA (the Works Project Administration). Grandpa Lomax always said that WPA meant "We piddle around," and that IWW meant "I won't work" instead of International Workers of the World. This from the railroad engineer who admired Gene Debs (who founded the IWW), but who had even greater admiration for a strong work ethic. Similarly, dad considered "working" for the WPA demeaning, which was a point of contention with my mother, who thought he was being completely unreasonable. Yet, in spite of all of her socialist rhetoric, she had the same ingrained work ethic. As I think back on these matters, there were contradictions all over the place, but they were not evident to any of the principals at any time. My mother was as fiercely independent and productivity oriented as she was collectivist minded, but she had no clue that collectivism completely destroys the freedom needed to nourish productivity. That requires far more understanding of the nature of humans and what they can accomplish through the extended order of market exchange than an otherwise sensible person like my mother could muster.

Wichita and farm life were separated by location as well as by intellectual and economic activity. The city was home to a surprising number of prominent businesses. Beech, Stearman, and Cessna Aircraft, Coleman Lantern Company, Dold Meatpacking, and the Fred Koch, Jack Vickers, and other petroleum companies provided tangible initial evidence of the machinery of markets, specialization, and globalization. Bold independent actions by Coleman, Cessna, Beech, Koch, Garvey, Innes, and many others instilled a Midwestern sense of freedom and entrepreneurship in Wichita.

Clyde Cessna had been brought up on the family farm at Rago, Kansas. He was skilled with farm machinery, became fascinated by the airplane, and built a series of monoplanes between 1911 and 1913. After World War I two other aviation pioneers, Lloyd Stearman and Walter Beech, who had left the Swallow Airplane Company, invited Cessna to join them in their start-up, Travel Air Manufacturing Company (Walter Innes, President and Treasurer;

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Cessna, Vice President; Beech, Secretary), and he designed a plane for mail services. The company manufactured mail planes of the same kind that Saint Exupéry and Beryl Markham flew in the 1920s and 1930s from Spain to Africa. (Read Saint Exupéry's beautiful *Wind, Sand and Stars*; *The Little Prince*; and *Night Flight*; also Markham's, incomparable, *West with the Night*) But, restless and intent on forming his own company, Cessna sold his shares in Travel Air and opened a workshop in the summer of 1927 on Wichita's west side near my home. I was six or seven months old. I grew up unaware that I was surrounded by people who were as fascinated by making things work, go, or fly as my father was. Stearman's original plant was built—believe it or not—in 1930 with funds advanced by Walter Innes and other Wichita business leaders.

As if to further defy the popular view that after 1929 economic activity ground to a halt, in 1932 Walter and Olive Beech co-founded Beech Aircraft, which would continue the tradition of Travel Air, taking over the Travel Air facilities in 1934. After Walter Beech died, his wife became president of Beech Aircraft in 1950, and has been recognized as one of the truly great early women executives as well as aviation pioneers. She was the first woman president of a New York Stock Exchange-listed company. Olive Ann Beech grew the company into an internationally successful manufacturer of light planes, and continued to be active on the Board well into her eighties. A parallel story can be told of Olive White Garvey, the matriarch of the Garvey family, who built the largest grain-storage facility in the world. These were two of the small army of women who settled the West and then helped to industrialize it, in the process defying the prevailing views of a woman's "place," and who also operated the dangerous new air machines: Amelia Earhart, lost in her historic flight around the world; and Jackie Cockran, the ace racing aviatrix. They were joined by Beryl Markham, who came out of Africa to become the first person to fly the Atlantic from East to West, and who wrote the marvelous memoir *West with the Night*.

I reentered in grade 2B in Martinson elementary public school. If we had stayed on the farm, Mr. Hemberger would have put me in 3A, but at Martinson the principal, Mrs. Burrite, balked at a full grade advance. These were good years, not least because I was discov-

ering girls! In grade school Leona Dusenberry was the first girl I liked. That must have been in the third or fourth grade. Jean Buck was next. She always reminded me of Stephen Foster's "Jeanie with the Light Brown Hair." She was a sweetheart. I had other friends at Martinson, such as Elizabeth Brubaker and Betty Dooley, for whom I had no special feelings—they were just girls, as we put it in those days. Many of us at Martinson went through public school together and graduated from North High at the same time. I saw many of them at my twentieth high school reunion. The funny thing is that I don't remember any boys from my Martinson days except my neighborhood playmates, such as Jack and Jim Randall, Clinton Reser, and Dean Vetten, who were from the long hot summer days of rubber guns and street hockey.

Good memories as a child on the farm were followed by good memories of growing up in the city. In the city I had lots of playmates—I had none in the two years I lived on the farm. Every evening after school, on Saturdays, on Sundays, and during the long hot summers, we played outdoor games. We played street hockey with homemade hockey sticks and a tin can for the puck. The goals were wooden boxes set on end at the south and north ends of a section of street. We had dirt-clod fights in the empty lots plowed for gardens before they were planted. We manufactured all of our own toys, except skates and bicycles.

Take a pair of discarded roller skates made to clamp onto the soles of your street shoes. Take the bolt out of the slot for adjusting them to shoe size, separating the front from the rear wheels. Take a hammer and flatten the raised edge at the rear for holding your heel. Align one set of wheels at the front and one at the rear of a two-foot two-by-four and screw them firmly to the bottom. Now turn it over, wheels down. It's a homemade skateboard. To make a cool scooter, you perform the same operation with the other skate, but use a three-foot two-by-four. Now get a wooden orange crate out of the trash bin down at Cole's grocery. Nail it to the top front of the two-by-four, wheels down. Now nail a one-by-two crossbar on top of the orange crate for your handlebars, and you are ready for a race.

*Vernon L. Smith*

We let nothing go to waste, including the discard items scavenged from the trash cans of the rich kids who were careless enough to throw away skates and other valuables that could be recycled into other toys.

Our favorite game by far was to make rubber guns and use them in gunfights, which we fought as wars of attrition. We made single-shot pistols, three-shot rifles, and machine guns. The ammunition consisted of thick rubber bands cut with scissors (I had to “borrow” my mom’s good sharp sewing scissors; they and the kitchen knives were always kept sharp by my father, and unknown to him, we made a little extra work for him).

Take a used automobile inner tube. Before World War II they were made from South Pacific rubber trees—not the synthetic rubber crap that appeared during the war years when the Pacific shipping lanes were harassed, and the military justifiably feared that Japan would block access to the rubber—and were very elastic and strong. Cut the bands about one-quarter to three-eighths of an inch wide orthogonal to the tube. For pistols use one band; for rifles use two, loop-tied end to end. Pistols were made from one-by-six wood planks cut two feet long. Saw out an L-shaped piece with a long one-by-two-inch barrel and a square handle; if you want to get fancy, cut it so that it looks a bit like Idaho rotated clockwise so that it points east instead of jabbing at British Columbia, Canada, from below. At the heel of the Idaho hogleg end, attach a clothespin pointing vertically. Load it by stretching one of the inner-tube bands over the end of the barrel and then back so that the band can be pinched into the clothespin. To fire the rubber band, you squeeze the handle, and as the heel of your hand presses the clothespin base, it relieves the pinch, allowing the rubber to slip out and be catapulted across the barrel toward the target—the barebacked “enemy” you have slipped up on from behind.

Make a rifle stock from a three-foot one-by-six board. Then attach an old broom handle—brooms are godsend with many uses—which serves as the rifle barrel. You can hardly wait for your mother to buy a new broom or mop, and the durability of her brooms sends you rummaging through all the back alley trashcans looking for adequate broom handle supplies. After attaching the broom handle barrel, you

mount three clothespins—middle, right, and left—on the stock at the butt of the barrel. Now you have a triple-barreled rifle. Load it with three of the extra-long rubber bands made by looping two bands together. Load the first band from the end of the barrel to the clothespin on the right. Pinch the second into the center pin and the third into the left clothespin. You are ready; just remember to fire in the reverse order—left, center, then right. This weapon will fire twice as far as a pistol, but you have to lead the target and learn to arc the shot into the fleeing enemy.

Then there is the rubber-band machine gun. Take about a five-foot one-by-six. Cut out a stock and barrel, the latter about two inches tall and extending back about three feet into two feet of stock that you hold waist high like a Thompson submachine gun (Tommy gun) to fire. Saw some notches about half an inch deep in the top of the gun starting about two to two and half feet from the end of the barrel. The notches should be two to three inches apart, vertical at the front and slanted to the rear—some people make them square. Nail the end of a length of binder twine underneath the bottom of the barrel at the front end. Bring the twine vertically up across the end of the barrel and then back along the barrel top to the first notch. Put a rubber band over the front of the barrel and stretch it back on top of the twine and place it over the twine in the first notch. Note now that if you were to pull the twine straight up, it would release the rubber band from the notch and it would fly off the end of the barrel. OK, put a second rubber band over the first on the end of the barrel and stretch it back to the second notch with the twine underneath. Continue for the third, and so on up to eight or ten notches. As you pull the twine up quickly, the last rubber band is released first, then the penultimate, and the next, down to the first one you loaded, which is the last to be released. A little backward induction is needed for rubber-band rifle and machine-gun technology.

Once you have loaded a machine gun, you can fire off two or three rounds in short bursts or just dump them all into a fleeing shirtless body glistening with sweat in the summer sun. A rubber gun shot leaves a red, ragged blotch on bare skin. The way you win a war of attrition is to have the most firepower—don't let anyone convince you that you can survive with precision shots—and generate lots of

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ragged red blotches. We are not talking here about accurate long-range weapons. If there is much in the way of a headwind those rubber bands encounter lots of air resistance, and when fired they peter out as fast as a macho braggart in a bawdy house.

Life was not all playtime. I had to mow the lawn, help Mom carry the baskets of clothes, hang and take in the laundry from the clothesline, and so on. Some farm tasks moved with us to the city. As I have already noted, we had a chicken pen and coop between the backyard and the alley behind the house. Every Saturday it was my job to clean out the chicken coop, and in particular to scrape off the roosts with a hoe and wash them down. The adults assigned this task; they never did it themselves. I dreaded it, but maybe it was supposed to have character-building value. If so, I must have really great character, so much did I hate that detail. But garden planting and tending were much different, and I really enjoyed them. We planted to save money and obtain high-quality vegetables, but nurturing seeds in the soil also instilled a habit of creativity.



I have always had gardens whenever possible, as I did when living in Kansas, Indiana, and Arizona. You can't obtain better tomatoes anywhere than homegrown varieties in Indiana (except that Peter Dougherty at Princeton University Press has broken through my insularity by pointing out that New Jersey tomatoes are awesome starting about mid-August). My favorite was and is the Ponderosa, or "beefsteak," variety, but since Ponderosas require a hundred days to mature, you need also to plant some early-maturing varieties to stay your impatience. People dependent on store-bought tomatoes (and most varieties of fruit, such as peaches and apricots) have no idea what a real tomato should taste like. Onions, muskmelons, and beans also do well in the rich soil of Indiana, where on summer nights you can actually hear the corn grow, I deceive you not, as the corn stocks randomly snap noisily in a large field when all else is quiet in the heavy night air.

In Arizona it's year-round gardening: leaf veggies, broccoli, green onions, radishes, and sugar snap peas in fall and winter; and cantaloupe, squash, all manners of peppers, and tomatoes in spring and summer. Herbs can be grown almost anytime.

Only gardeners tutored by my mother or other natural-born horticultural chefs know that a beet tuber is an engine for growing tops for salads and stir-fries; that squash yields can be improved by hand pollination of the female blooms freshly opened in the early morning; that you eat the male blooms in salads, or deep-fried in batter, after they have been spent servicing the newly opened females; that tomato blossoms won't set tomatoes if it's too cool or too warm; that the best pie this side of heaven is made from freshly cut rhubarb; that NO strawberries should be mixed with the rhubarb—shades of catsup on a finely crafted hamburger; and what can be done with the huge crop of green tomatoes left on the vines when the first killing autumn frost occurs—the vines are at peak production at frost time and are heavily laden. The squash-blossom routine I learned on my own, but countless hours with my mother in the garden—preparing the soil, planting, weeding, nurturing, and harvesting—enabled me to move and think seamlessly from seeds to the stove to the table as did she. Making green-tomato relish, cooking fried green tomatoes, and the art of storing green tomatoes in the dark for a rich ruby red harvest at Christmas were things my mother taught me. Mother, like my father, was a storehouse of knowledge about how things worked, and she taught practical procedures for garden and kitchen.



In the 1920s my Grandfather Lomax announced one day to my mother, “Belle, I think I have found a church for us.” It was the First Unitarian Church, located at the southeast corner of Central and

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Topeka, just east of Cathedral High. Grandpa read Ralph Ingersoll and other religious skeptics and was essentially an agnostic. Western Unitarianism leaned strongly toward humanism, but used a rich mixture of sacred and secular music and poetic forms in the Sunday service that I grew to love and respect. On the slanting walls on either side of the choir loft, behind the center pulpit, appeared both secular and sacred inscriptions: the quotation at the beginning of this book from Edna St Vincent Millay's *Renascence*, the scripture "He who loveth not his brother whom he hath seen, how can he love God whom he hath not seen?" and others that I no longer recall. It was to the liking of both my parents, and I was raised in that church and am therefore a third-generation Unitarian, but I have rarely been to church since my children grew up.

My mother studied piano and had a very good soprano voice. My father studied voice and sang many solo tenor performances around the city. Both sang solo in the church and sang in the choir, and for many years after returning from the farm my mother directed the choir. These interests drew them to classical music that they were otherwise unlikely to have studied. Also, for many years before leaving for the farm and after returning to the city, my parents were active in the Wichita Opera Society. They sang in the chorus production of *The Pirates of Penzance*, *HMS Pinafore*, Mascagni's magnificent, unparalleled melodic opera, *Cavalleria Rusticana*, and others. (Remember *Godfather III*, with the opera performance as background to the final scenes? That was a collector's production of Mascagni's classic work.)

Dad sang the tenor part of the Prospector in the local production of *Sunset Trail*. My parents' musical dedication and experience had a big influence on me, although I have no instrumental performing talent. But I have no difficulty singing on key and can peck out a tune on a piano by reading sheet music or by my mind's memory of sound. In those days no one used baby-sitters, so I attended all practice, rehearsal, and performance sessions, often falling asleep during a rehearsal. To this day I know from memory many of the refrains and even the words of some of the operas in which they sang: "So landsmen all, wherever you may be, if you want to climb to the top of the tree . . . be careful to be guided by this golden rule: stick close to

the desk and never go to sea and you all may be rulers of the King's Naveee."

My Unitarian upbringing left me completely naïve about what religion meant to others. At Martinson Elementary School there was a standard Bible school program under which classes were escorted to a local church for Bible instruction. One day I brought home an announcement and consent form for my mother to sign that would allow me to attend Bible school every Thursday morning at a nearby Baptist church. The teachers encouraged all the children to go, since if any did not all go, the teacher had to stay and supervise the children who did not participate. Mom asked if I wanted to go and I said, "Sure." All the others were going, and in those days I never was one to miss out on anything. So she signed. A few weeks later, curious about what I thought about it—I was never, then or now, one to volunteer anything—she asked how I liked Bible school. "Fine," I replied. Mom asked, "What is it that you like about it?" I said, "The stories." "What stories?" she asked. "All those stories about God and Jesus," I replied. She many times related to others this account of my first brush with the Bible. I understood the Bible lessons as recounting stories exactly like the stories that I had read in the Grimm and Andersen tales, volume 17 of the Harvard Classics, or in *Tal*. No one ever explained to me that the Bible was considered to be completely different by all kinds of people. I remember being involved in an argument with Max Clark's younger sister, Darlene. The Clarks were Catholic, which meant nothing to me, and Darlene was telling me about how the biblical accounts were all true. I said that they were never intended to be true, that they were just supposed to be good stories. I do not know how old I was, but Mom explained that many people, including the Clarks, did indeed believe that the Bible is a record of true events that happened just as reported. In fact, of course, as we now know, the Bible as history is remarkably accurate, and provides a pretty fair guideline for Middle Eastern archaeological explorations.

In 1920 my mother cast her first vote for Eugene Victor Debs, socialist candidate for president, who was campaigning from his jail cell where he had been sentenced as a result of his opposition to World War I. Bertrand Russell once said that there had been

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only two wars worth fighting: the American Revolution and World War II. He was surely right about World War I: We won the war, but then lost the peace in a fit of retribution that set the stage for the rise of Hitler and World War II, which we had to fight to stop that beast. Russell did not live to see the stupidity of the Vietnam War that Eisenhower had been astute enough to avoid, knowing well the hazards of getting bogged down in a land war in Southeast Asia. And of course my favorite war has always been the American Revolution. Our ancestors were doing God's work when they threw the redcoats out of this land. Going after the Tories in Canada was a little headstrong, but the War of 1812 might well have turned out to have been another good one for the arrogant Americans to win.

I never remember my mother being politically committed to anything except the American Socialist Party. In Kansas the socialists had difficulty fielding a complete slate of candidates, and her name regularly appeared on the ballot for Kansas State Treasurer, although she never did anything you could have called campaigning. I remember well the 1936 presidential campaign when I was going on ten years of age. Bob Beloof and I handed out programs at the Wichita Forum when Norman Thomas, the Socialist candidate, came to speak. Bob was the son of Mrs. Beloof, the absolute bedrock of the Kansas Socialist Party. She held Party meetings regularly in her home and spoke against the capitalist profit system that she believed to be the root cause of war, poverty, unhappiness, and all other ills of the contemporary world. She was a self-styled Marxist through and through, although most American socialists were very pragmatic, I think, and did not feel ideologically connected to Marx. (They knew the more famous Harpo, Chico, and Groucho better than Karl.) When Norman Thomas visited Wichita, we met with him in her living room, and he came to our home once on another campaign trip in the 1940s. He was a very impressive person with a New York accent who referred to the *saowshilist* movement. Tall, articulate, quick, and very knowledgeable about current events and trends, Thomas was a man of great compassion. He was always challenging Roosevelt, Landon, Communist—few were more anticommunist than Thomas and the Socialists—and later candidates to debates, to which bait they never rose. This brought out the showman

in him. At the Wichita Forum he debated Roosevelt anyway, placing an empty chair center stage, where “all can see that the president has, as always, accepted the challenge.” Thomas fired both the questions and answers back and forth. At one point he offered no response for the chair to a sensitive issue, his query was met with silence, and the audience much enjoyed the resulting sport. After World War II Thomas traveled, spoke, and campaigned continuously to create the United Nations, and he made the news often as a peacenik and antiwar protester. He surely must have received many nominations for the Nobel Peace prize, but he had a formidable competitor in Linus Pauling, who was much better known in Oslo where the Peace Prize is awarded.

Mrs. Beloof always thought that his efforts for peace were irrelevant diversions, for peace was unattainable until the world was rid of the capitalist profit system. Thomas, she thought, ought to hold to this basic socialist faith. I recall, however, that his message as an American Socialist after the war was tempered by an expressed concern for what he had come to recognize as an incentive problem in the government operation of enterprise. Norman Thomas was not a doctrinaire socialist like most. He was a great American, very much a product of his particular time. With a better understanding of how an economy works, he could have been a very effective political force, but not as a socialist, for with any such understanding he could never have been a socialist. When I entered the voting booth for the first time in 1948, at age twenty-one, I repeated my mother’s history of 1920 and cheerfully voted Socialist, for Norman Thomas. I doubt that I have voted for any one since who approached Thomas’s incredible integrity and compassion for humanity. Remarkably, I still have a warm memory of that experience, although I know, of course, that command and control systems do not and cannot work, and demonstrably cannot manage the economy. They perpetuate poverty, destroy freedom, subordinate the individual to a mindless bureaucracy of doublespeak, and in their worst incarnations, brutalize their most imaginative and independent citizens, all the time claiming otherwise. This is of course why Thomas was anticommunist, but he did not appreciate that it was impossible to rely upon well-meaning

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socialist politicians to avoid the corruptions of increased state control of the private economy.



An understanding of why I could feel warmly toward that first voting experience would go a long way to explaining why in the name of freedom, fairness, and justice we realize less and less of all three; why liberalization efforts break through the political process—for example, the worldwide privatization and decentralization movement of the 1990s—but the pendulum also swings back and gradually undermines wealth-creating, and poverty-reducing, reforms.

The answer, I think, based on ongoing behavioral research with my colleagues, is found in an inherent tension between the individual's experience in social exchange and the requirements of freedom in the external order of impersonal exchange through markets. As I have written in my research, you can make the case that the collectivist individual impulse is nourished by human perceptions and understanding that comes experientially from what the economic historian and Nobel laureate Doug North calls "personal exchange." Personal exchange is what I described earlier, on the farm, as trading favors and barter in close-knit communities based on trust and reliability. In this more intimate environment, our individual experience is that good comes from reciprocity—doing good and receiving good in return—being cooperative, and being a good neighbor. At the level of the family, extended family, and our social groupings, our direct experience is that we produce good by intentionally doing good.

In impersonal market exchange through prices, we do not see that it involves—functionally, but not emotionally—the same reciprocal benefits for buyer and seller that characterize personal exchange.

Neither do we see that specialization—or knowledge and task subdivision—derives from and is supported by markets; that each of us is empowered by markets to specialize in some field of knowledge and skills, increasing thereby our value to others through market exchange, and to use our higher earning capacity to enjoy the products and services of others who also specialize in activities different from ours. Without markets no one can specialize in the acquisition of unique high-value skills and knowledge while simultaneously benefiting from the uniquely valuable skills and knowledge of others. We do not directly experience the fact that millions of people, with differing cultures, languages, skills, and resources, cooperate through long networks of interdependence connected by prices, but we all benefit from the immense wealth created by this invisible cooperation. These facts are not part of an experience of warmth, as in our deliberate acts of neighborhood sharing. If the price of gasoline increases, our immediate perception is that the oil companies get more money and we get less, and that is not “fair.” What we do *not* see is that some remote disruption of a source of supply or an increase in demand has caused the price increase, and that this sets in motion an adjustment process providing incentives for supplies going elsewhere to be diverted to us—or one of dozens of other causes and effects.

Consequently, we readily come to believe that markets perform badly and that by means of better planning and intervention we can make them work better for everybody—and make us feel better because we have acted—but such a myopic policy has unintended consequences, making us worse off, and these consequences are invisible to our experience. Emotionally, we easily and warmly relate to programs of redistribution and control in political economy that unintentionally do far more harm than

good any time the natural state is both efficient and in equilibrium. Any human good that is claimed will flow from some interventionist scheme seems to ring true, but the creeping and accumulating harm it causes in limiting the growth of wealth and welfare is not plainly visible to our experience.

Periodically, there is a moment of truth, as in the House and Senate coalition that led to the tax reforms of 1986. But that action did nothing to change the incremental process that had culminated in the high marginal taxes and tax subsidies for farmers, real estate, and so on that were crying out for reform in 1986. As I write, the Cancún international trade meeting (September 2003) has broken down. The less-developed South Asian countries have revolted against the subsidies and protectionist agricultural policies of the United States, Europe, and even nonagricultural Japan (in rice production). Good for them; may they turn the tide against such policies and open the globe to freer multilateral trade, not more of these regional bilateral half measures in which neighbors solemnly agree to beggar their other neighbors.

Similarly, New Zealand's socialism created an economy in crisis by 1980. Extensive, perhaps unprecedented liberalization and reform of taxes and state ownership were undertaken with demonstrated economic benefits, but by the late 1990s many of those reforms were being compromised. New Zealanders are a caring and egalitarian people—I have experienced it—but this leads easily to policies in which people unintentionally shoot themselves in the foot. The New Zealand economy came out of World War II with the third-highest per capita income in the world—tied with Switzerland—and then pissed away this accomplishment because it was unable and unwilling to compete in growing world markets. A small country competing in world markets cannot

afford socialism and its wastefulness; a large country can afford it only for as long as it has the resources to sustain the wastefulness. A small country rich in oil, diamonds, and other extractive resources can afford it only so long as the revenue from basic commodity exports continues.

The crux of the socialist disease and its destruction of community were captured for me in 1978 in a taxicab trip from the Wellington airport to my hotel. The driver was friendly, and I asked him, "Tell me about your country." He replied, "It's really wonderful. I don't like paying half my small income in taxes, but we receive so much that is free: health care benefits, prescriptions, free education through college and advanced graduate study. I am just a cab driver, but my son is going to be a medical doctor. He has finished his medical degree and internship and will begin practicing next year." In recognition of his obvious pride, I said, "How wonderful. You have every right to be proud. Is he going to practice in Wellington?" He replied, "Oh, no, he's going to Australia. You can't make any money here." The New Zealand economic crisis occurred two years later, and the socialist system was replaced by a Labor Government, whose forebears had believed in the 1930s flush of enthusiasm that socialism would work so long as it was democratic.

I tell the taxi-driver story in talks around the world on markets, globalization, and prosperity. It triggers a wave of audience laughter. In private discussions afterward, from Iceland and Scandinavia to Mexico, people tell me their own brain-drain stories and their worry that opportunities at home are not adequate to hold their best and brightest. I am told that it's less of a problem in Iceland, because those who leave tend eventually to return for love of homeland, but even there those wonderfully dedicated people are

flirting with danger. Essentially, state policies that inhibit, restrict, or control private development levy a tax—the higher incomes given up elsewhere—on the good will Icelanders create for each other in their home country.

Occasionally, but rarely I am happy to report, after my speech someone will suggest the need for a rule that requires those educated at home to stay at home. Thus emerges the authoritarian mind, looking for a fix that will make the impossible possible, but failing to see that this “solution” is at the core of the problem. First, you do some great and obvious “social good,” such as free education through advanced degrees. Then, after it becomes clear that what you have done is flawed because of “ungrateful citizens,” who are taxed to provide the free education, and that it is failing to live up to the expectation that it will do good without harm, you crank up the policing power of the state to plug the leak. It says a lot about New Zealanders that they could not bring themselves to take police action before or after the crisis hit. Instead, they opted for greater freedom.

The Berlin wall was Communist East Germany’s attempt to forcefully retain its best and brightest who wanted to migrate to one of the many places that offered greater opportunities. The U.S. Immigration and Naturalization Service (INS) guards, Berlin-wall-like, the U.S. border to keep out people who seek opportunities unavailable at home. This is bad policy based on the premise that the individual exists for the good of the group, rather than that the group exists for the benefit of the individual.

Here is a concrete illustration of how East Germany shot off its legs by causing people to leave, and how we, through the INS, hurt ourselves by keeping out people who are seeking a better life. When he was a teenager, my friend Bill Oschewski walked out of

East Germany with his uncle, with only the clothes he was wearing. This was shortly before the Berlin wall had been built, when people could still get out but could take no valuable possessions of any kind. He managed to immigrate to the United States, attend school, earn an engineering degree, and afterward he worked in Tucson for Burr Brown. Eventually he left the company, founded Apex Micro Technology, in part self-financing its start-up by selling his spacious home. Eventually he sold this successful electronic manufacturing business. He was part of a wealth-creation process that might have occurred in his homeland but for its failed commitment to freedom and opportunity. Sadly, over the decades, he saw in the United States a growing number of regulations, taxes, and bureaucratic interferences that made it increasingly difficult to conduct his operations and to do good for others while doing well for his family as part of an international market system.



In 1940 my father lost his job permanently when the independent entrepreneur owner of Bridgeport, A. A. Bushaw, closed his factory rather than cede control of his oil-field equipment factory to President Franklin Roosevelt's defense industry production. (Bushaw's Bridgeport plant was taken over by Culver Aircraft and used for defense, then war production; markets are not sympathetic to waste, unless someone is willing to pay for their preferences.) My father then went to work for the Coleman Lantern Company, but stayed there for less than a year. Then, on October 24, 1940, he hired on at Stearman Aircraft, which had been purchased by Boeing in 1938, the year that Hitler marched into Poland. I remember the larger-than-normal headlines in the *Wichita Beacon* announcing Hitler's unopposed invasion.

Lloyd Stearman manufactured the famous PT-13 and PT-17 Kaydet biplanes that served as U.S. Primary Trainers then and throughout World War II. The Navy had adopted Stearman's plane in 1934. If you are driving in the West occasionally you still see

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a Stearman biplane providing its high-maneuverability service as a crop duster. In 1941 Boeing started the construction of Plant II, where the B-29 was to be built, and the Stearman plant (built in 1930) was renamed the Boeing-Wichita Plant I. By 1945 more than 1,000 B-29s and 10,000 Kaydets had been manufactured by Boeing-Wichita for the war effort. My father moved from Plant I to Plant II when it was completed, working as a supervisor in the Machine Tool Department, where he was employed until his death in 1954 at age sixty-four, a few months before he planned to retire.

Sometime in the 1940s, to increase war production, the United States converted to “Roosevelt time”—or Daylight Saving Time. In Kansas, it was said that Roosevelt time replaced God’s time. There was no concept of an arbitrary standard time, created by humans, in Kansas folk physics.



Wichita became the national, then international, center for light plane manufacturing. Why? I always heard that it was because Kansas had more clear flying days than any of the other competing states. The industry and the stock market, in the 1920s and 1930s, were part of a classic bubble with many new products in great demand. In 1929 Wichita had some fifteen different airplane manufacturers: Travel Air, Stearman, Cessna, United, Laird, Swift, Lark, Knoll, Bradley, Yunkers, Wichita, Watkins, Mooney, Sullivan, and Buckley (*Wichita Century*, 1870-1970). A decade later the surviving company names would be Beech, Cessna, and Stearman (Boeing). Three companies (some might also count Culver, which did not stay in Wichita) rose like the phoenix from the bankruptcies and consolidations of the many beginners early in the century that were financed by exuberant investors. Clyde Cessna, Walter Beech, and Lloyd Stearman had been essential to the entrepreneurial survival process. Incredible long-term value was created from those risky experiments in new technology, technology management, and the process

of determining who should be the survivors of the fifteen start-ups in 1929. Every bubble and crash, fueled by a wave of innovation and new products, from steamships, railroads, and mass retailing in the nineteenth century, to the computer, communication, and Internet revolution of the 1990s, writes a similar story.



After my stellar first-grade academic achievements, I continued to perform well in the city elementary schools—except for penmanship from Mrs. Hadley at Martinson, which was never my forte. (The psychologist who gave me a battery of tests in 1995 suggested that I had dysgraphia. Come now, doesn't every physician exhibit this disease when he writes prescriptions?) My school performance, however, deteriorated beginning in the eighth grade and all through high school. I found high school very uninspiring—girls were far and away more interesting—but I always expected to go to college. My inspiration was just temporarily diverted, as is common with teenagers. I vividly recall that my mother helped me with my English homework when we were learning to diagram sentences in the tenth grade, and complained about the deterioration in the quality of the public schools, circa 1941-1942. She had learned to diagram sentences in the eighth grade. It was not evident to me why one should learn it in any grade, but what did I know? I never got the point of diagramming, nor did I ever understand what language was all about, until fifty odd years later when I had the great pleasure of reading Steve Pinker's *The Language Instinct* (1994).

I have often wondered whether my mother's socialist constructions would have survived her pragmatism, and the reality of poor performance in socialist-controlled production, including public education. Much later I would "learn" from economics books that education was a public good that "needed" to be supplied by the government. This is one of the many things you "learn" in economics that are not true: Public goods, including education, can and are routinely provided privately; it is entirely feasible to have privately provided education even if much of it is publicly financed, as with the voucher system. I wonder what Mr. Hemberger would think of

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the idea that he was working for the government, not his neighbors, and producing a public good!

I began seventh grade at Allison Intermediate in January 1938. I had a big crush on Virginia Hill, who was cute as a bug's ear. Plenty of others had a crush on Virginia. She and I were in the same class. In the summer, probably following the seventh or eighth grade, I used to ride my bike way down on South Seneca to Harry Street. Clinton Reser went with me sometimes. On the northeast corner of Seneca and Harry was a big lot, but not such a big house, considering that it contained a large family. The big lot was to accommodate Hills Nursery. Virginia's father ran a greenhouse and nursery business. Virginia had two older sisters, whose names have long been obliterated from my memory, an older brother, Dale, and a sweet-as-sin younger sister, Rosemary, very nearly up to Virginia's pace-making standard. You could have eaten Virginia with a spoon. The Hills had a big mulberry tree in the front yard, and we used to climb it and pick mulberries to eat until we were stuffed. Decades later I drove down on the south side of town, and Dale was running Hills Nursery. The others had scattered. Virginia had moved to California. Why does everyone end up in California?

I must have had a crush on Virginia for two years, but there was no visible evidence of reciprocation. Of course it was possible that there was, but I just was too socially inept to know it. In those days and at that age no one ever revealed feelings, but that may have been me. I may have been the principal "no one" who had not a clue that others were on a frequency different from mine and that their messages were not received. Anyway, after we all transferred to North High, I no longer saw much of Virginia. She was popular at North High, dated the football heroes, and all that. I was never part of the social scene at North. You are born to your caste in high school. Virginia was cute enough to overcome both of her caste handicaps—she was born on both the west and south sides of the tracks. That was really oblivion Ville in Wichita, but you can overcome oblivion if you're a sweetheart. I did visit Virginia in the hospital once, where she was recovering from surgery on her tailbone. The upshot is that my crush passed to Rosemary, who was a year younger than Virginia and in the class behind ours. That made her my age—you do what you have

to do. Remember: I was the youngest in my class, thanks to Mr. Hemberger back in the first grade in Milan. Being the youngest in your class and male are not conditions calculated to enhance your social status.

From Rosemary my ongoing need to be in a state of crush passed to Juanita Brockert. She was something: The sweethearts were getting sweeter!

It was almost exactly a mile from my home to my intermediate school, Allison, which was on Seneca Street, one block south of Douglas. On the way you passed the Nu Way Restaurant and Drive Inn on the north side of Douglas Avenue, a street that at the time was paved entirely with bricks. Tom McEvoy opened the Nu Way in 1930. It is still in operation at the same location, where I stopped to eat a Nu Way with my wife Candace; my niece, Marlene (Billye's daughter); and Marlene's husband, Harold Shapley, on another of my lifelong sequence of lucky days, April 13, 2003. How many restaurants have operated continuously at the same location for seventy-three years, based on a single new product that has not changed? Tom McEvoy was a great Wichita entrepreneur. Not being rich was his deliberate choice.



A Nu Way was and is a type of hamburger sandwich made in an entirely new way. I ate precious few of them from 1938 to 1941, because—even at five cents each—we could not afford them except as special treats. The ground hamburger is not fried in the form of the standard hamburger patty. The meat is stir-fried so that the finely ground ribbons of beef are separated like rice and kept hot in a steam table until served. It is cooked with onions and mild spices (secret?) that give it an exceptionally rich beef flavor that radiates from the large exposed surface area of the ground meat, which in a typical hamburger is compressed into a single large patty with much less surface area for the same volume. For a Nu Way, a hot hamburger bun is spread with a thin layer of mustard, a layer of thin slices of dill pickle is added, and the

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cooked beef-onion mixture is scooped on top of the pickles. It is served in lightly waxed wrapping paper to keep it hot, and it tastes quite different from the traditional hamburger, with a fine bouquet of flavor from meat, bun, pickle and onion. It was and is to this day a culinary sensation. If you happen to be passing through Wichita, don't miss the experience of a Nu Way. Tom McEvoy also served chili, keg root beer in ice cold mugs, root beer floats (with floating scoops of vanilla ice cream), and root beer frosties (with the ice cream mixed in). There were no French fries on the menu, and no catsup was ever available on the counters or tables—none, absolutely none. Tom believed it ruined the Nu Way, and he was dead right. There were also home-baked desserts available: apple pie and sour cherry pie.

In the spirit of Ben Franklin, who refused to patent the Franklin stove, Tom McEvoy refused repeated offers to franchise his product. He believed strongly that it could not be mass-produced under the quality control he made famous. His restaurant often had a waiting line, with people also standing around the walls behind occupied stools. After Tom died, his wife, Helen, managed the business in the same tradition, finally selling it to its current owner in 1976. There are now four other Nu Ways on the east side of town; all serve French fries, and the abominable catsup bottles are on every table. I can see and hear Tom screaming from his grave. But the original West Side address still serves a great Nu Way as part of an unforgettable slice of Wichita-style Americana. Rest in peace, Tom: Your innovation has survived unaltered, as served, and catsup is not the only generational quirk of the last seventy-three years.



My best grades in the ninth grade were in woodworking because it involved actually manufacturing something—a red-gum knee-hole

desk that I still had with me from 1952 to 1955 at Harvard. I was working evenings and weekends, continuing the employment I had started during the previous summer, at age twelve. I had begun my first wage work for Mrs. Blackburn, who owned the West Side Drug Store. It was located next door west of the Sinclair Station at the northwest corner of Meridian and Douglas—one-half block south and a block west of my home. I delivered prescriptions and sundries on my bicycle to customers who called in orders. The most common delivery items were prescriptions, over-the-counter remedies like Bayer aspirin and cough medicines, bottled Coca-Cola, Kansas City's Muelbach beer, Steffan's Ice Cream, Trojan or Sheik brand condoms, and Kotex. To qualify for delivery the minimum order was twenty-five cents. To give you some perspective, a pint of Steffan's was fifteen cents and a six-pack of the original bottled Coke was twenty-five cents plus a private, profit-motivated, two-cent deposit on each bottle to ensure its return to the bottling factory.

Incidentally, to this day I avoid drinking Coke or Pepsi from a can, so accustomed was I to the bottles—I swear that it tastes different! But actually, except for fountain cokes, a different experience than now, I preferred Pepsi because of its higher carbonation, and perhaps its clever ad: "Pepsi Cola hits the spot, twelve full ounces that's a lot, twice as much for a nickel toooo, Pepsi Cola is the drink for you." (The classic Coke bottle was six ounces.)

Recall the history of coal oil and shale oil, which shows that if the conditions and price/cost are right, you may get an environmentally friendly economic response that is otherwise not sustainable. Here it is again with the spontaneous emergence of the cost-based deposit for the return of bottles. Spontaneous? Wasn't the return deposit (two cents per bottle for beer also, five cents for quart beer bottles) a government-imposed policy to prevent littering? Of course not. Glass bottles were valuable and more costly to produce than the two-cent deposit inducement to get people to return them. Container deposits were common because recycling was cost effective. Container litter control was a problem solved by market incentives: The benefit to the bottler of providing deposit incentives for bottle return was greater than the cost of manufacturing a new bottle. This was before minimum wage laws, and cheap unskilled

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labor was profitably employed in a huge return movement of bottles to the factories. I must have returned hundreds, perhaps as many as a thousand, empty bottles to the West Side Drug Store after delivering Coke or Muelbach Beer (Kansas City's entry into the local brewery tradition well before the 1930s) to a customer on my bicycle. My playmates and I regularly scoured the back alleys and trash cans for discarded pop and beer bottles to earn pocket money. One man's litter was another man's, or boys, income. We also collected papers and rags, especially rags, because they had a very high return on scavenging at seven cents per pound. We were all poor but happy rag, paper, and bottle people.

All this experience was the basis for four papers I wrote on the economics of the environment: "Dynamics of Waste Accumulation: Disposal versus Recycling," *Quarterly Journal of Economics*, November 1972; "An Optimistic Theory of Exhaustible Resources," *Journal of Economic Theory*, December 1974; "Economics of Wilderness Resources," *Intermountain Economic Review*, Fall 1976 (This paper was inspired and written by a Grand Canyon white-water rafting trip, so I deducted all expenses for the trip from my taxable income. As it happened, the IRS audited me for that year, and, after I showed the auditor a copy of the research paper, my deduction stood unchallenged!); and "Littering, Derelicts, and the Pricing System," chapter 22 in *Economics of Natural and Environmental Resources*, ed. V. L. Smith (New York: Gordon and Breach, 1977).

I still have my original Social Security card, which I signed when I was twelve or thirteen. To my mother, Social Security was an unrivaled social invention. Not realizing that it was just a tax, and that it was unvested, she wanted me to enroll early. Here I sit sixty-three years later receiving Social Security payments of \$1,900 and some change each month. What would the payments have been if Social Security had been vested? Let me give you my off-the-cuff estimate: over \$19,000.

Between deliveries at West Side Drug, I waited on customers and learned to "soda jerk" on an old-fashioned drug-store fountain (cokes, milk and malt shakes, ice cream sundaes, sodas, etc. Candace and I moved into a neighborhood close to Old Towne, Orange, California in January 2008 where to my delight I discovered Watson's Drug

Store, founded in 1899 and located just off the Old Towne circle. It has the same kind of old fashioned soda fountain that I learned to manage in Wichita. I heartily recommend Watson's to you, both for quality and reasonable prices. Enjoy!). I can still make a great fresh lime soda with vanilla ice cream, but my physician does not want me to eat it. At the West Side Drug, I was paid fifty cents for a six-hour shift from 6:00 p.m. to midnight, plus rare tips. Let's see now, fifty cents per six-hour shift is the equivalent of only five six-packs of coke bottles returned per hour—call it economics in one easy lesson. You can see why there would hardly have been a bottle anywhere that was not found and returned. Minimum-wage laws, not yet part of the national political do-good movement, would have helped to destroy the economic incentive for private firms to recycle bottles. More certainly, the good intentions from trying to force the payment of higher wages would have compromised Mrs. Blackburn's ability to hire me; later times guaranteed that outcome in the form of the prohibition of child labor. I was fortunate *not* to have been protected by such laws, and perforce, I learned something about being responsible to an employer at an early age. As for the recycling equilibrium, technology alone might have eventually lowered the cost of manufacturing new containers enough to induce the subsequent littering equilibrium.



*Chapter 6*  
**High School, Boeing,  
and the War Years**

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If goods don't cross borders soldiers will.

—F. Bastiat

My friends in America, I want to give full recognition to you for what you are doing. . . . It is possible that the feeling of your material power may, some day, lead you to take advantages that may appear to us to be unjustifiably harmful to us . . . these reproaches will never make me forget the nobility of the war aims of your nation. I will always give the same testimony about the quality of the people you are. It was not for the pursuit of material interests that the mothers of the United States gave their sons. It was not for material interests that those boys accepted the risk of death.

—Antoine de St. Exupéry,  
*Letter to an American*

In January 1941 I finished at Allison Intermediate School and started at North High School, commuting by bicycle three to four miles from home to school. On the way, one mile from my house at the northeast corner of Second Street and Seneca, was a restaurant and fountain called the OK Drive Inn, owned and operated by Don Eaton, who had moved there from Meridian and Douglas. When I was fourteen, on the strength of my soda fountain and other work experience, Don offered me a job at \$1 per day, summers and weekends. That seemed like very good wages to me—\$6 per week with one day off. I remember in the early 1930s, after my father was laid off at Bridgeport, he was paid \$1 a day working as a tempo-

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rary construction carpenter making and installing windows. At the OK Inn I operated the fountain and learned to “fry cook,” and Don later gave me a raise to \$8 per six-day week. But from Don Eaton I received a much larger benefit than wage earnings of \$8 per week.

From Don I learned how to make really great hamburgers, and to this day people rave about them, yet the procedure is simplicity itself, spiced with a little loving attention to detail. You take a fresh large hamburger bun and slice it into two open-faced halves. The meat patty should be about the same size as the bun, and *not too thick*—one-quarter to no more than three-eighths of an inch is plenty. You don’t want the meat flavor to dominate everything—to wipe out the subtle blend of meat, bun, dill pickle, onion, and mustard. If you are hungry for steak, go to Kansas City and order a rare KC strip steak, but don’t obliterate the other important flavors in a good hamburger. (To order a rare KC strip steak tell the waiter to run that steer to a good hot sweat, cut off his horns, wipe his ass, and you’ll eat him.) Place the hamburger patty on the hot solid iron griddle (*not* a barbecue grill with iron slats that dry out the meat patties and change their flavor for the worse) to fry. Immediately place the bottom half of the bun on the griddle near the hamburger after scraping any excess grease off the metal under the bun. Place the top half of the bun on the frying meat patty. When the meat is half cooked to order, turn the meat over and interchange the top half of the bun on the meat with the bottom half on the griddle. The griddle toasts the buns, while the frying meat steams each bun-half through and through with rich beef flavor. Take it off the griddle when done to order and wrap in sandwich form with a large paper napkin to hold in the heat and marinate the flavor. Do *not* dump it unwrapped on a cold plate. Finally, you serve it with *very thin*-sliced fresh, vine-ripened tomatoes (Ponderosa tomatoes, if available), thin-sliced whole dill pickle (slice your own from whole pickles; the sliced pickles in the canned jars are too thick), and thin-sliced whole onion, all prepared in advance so that the hamburger can be served hot. The onions can be fried if the customer prefers. Why must these three items all be sliced very thin? It’s because taste buds respond to surface area, not volume, and you want to maximize the surface area for a given bulk volume. (Recall the Nu Way principle.) You

also can serve the hamburger with a little mustard spread thinly and evenly on the meat or bun. Above all, if you are preparing them to order at your party, *discourage any person from dumping catsup all over the meat*. In fact, hide the bloody catsup and if some yahoo asks for it, tell him that you don't have any. Catsup on a finely crafted hamburger is an outrage. Catsup destroys the subtle blend of fresh-sliced tomato flavor with the beef, pickle, onion, and the steamed and toasted bun. We are talking about an art form here, and it really must be respected.



Since the advent of the fast food hamburger, the art of fine handcrafted hamburger cuisine has largely disappeared. I fried hamburgers for Don Eaton in 1941 for \$1 a day, long before the minimum-wage laws. Minimum-wage laws had the important unintended consequence of artificially encouraging the standardized machine-aided production of hamburgers—add this to the fact that they encouraged the littering equilibrium discussed above. MacDonald created a low-cost, prepackaged formula for making, holding, and dispensing hot hamburgers that greatly reduced minimum wage labor costs. It illustrates how increasing the price of an important input (labor) for a widely demanded product can lead to innovations that substitute machinery for labor and increasing unemployment. In this case a second unintended consequence was a decline in the quality and diversity of the product. Making hamburgers the way we did was just too time consuming to compete with the new, fast hamburger chains, and even if our product was of substantially higher quality, consumers were not willing to pay the cost difference. We have seen a similar phenomenon in the fresh salmon industry. Wild Alaska Sockeye, King, and Coho salmon are much higher quality than farmed salmon, but not enough to command a large premium. Consequently, wild salmon today fetches prices that are only about

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25 percent of the prices obtained prior to the entry of farmed salmon.



Don served the best chili you can buy anywhere. It was Dye's Chili, also served at the Nu Way. Dye's was ready made in Wichita and distributed to local restaurants in five-pound solid blocks. It could be bought in one-pound bricks for home consumption in the local grocery stores. It's a cholesterol-rich nightmare to your cardiologist, as evidenced by the fact that it is a solid brick at room temperature, but it really tastes very good. Avoid fat for a day or two on either side of the day you want to eat a couple of bowls of Dye's chili. At the OK Inn, we would put a five-pound block in a deep steam table pan with some water and gradually dissolve it. In a separate steam table pan you put cooked pinto or red beans. Chili straight was fifteen cents per bowl; chili with beans cost ten cents per bowl.



Can you make your own homemade chili that compares with Dye's? Yes, you can—without the cholesterol binge—but it takes a day, a night, a second day, and some patience and tender loving care. To begin with, I don't work from a recipe. I have probably made it a couple hundred or more times, and I judge proportions depending on how many people I am cooking it for, and how I feel at the time. I will write out a recipe as I think through the sequence of making a batch, based on three pounds of beef. So I am only giving you estimates.

Read it all through so that you can list the ingredients and have them ready and also so that you understand the sequence. Some of the ingredients are for cooking the beans, while some are for the chili. Each is cooked separately and combined when served, or consumed separately, depending on individual preferences.

For this amount you will need about an eight-quart pot for the chili and a four-quart pot for the beans.

You cook the chili and beans separately because the cooking time is different, and when served, those who are prone to flatulence, or otherwise want to avoid beans in their diet, can enjoy the chili separately. The beans I cook have a moderately high yield of intestinal gas—about .38-caliber farts, on a scale up to .50-caliber. Also, some like lots of beans and some very little—more beans, more gas. It's the "musical fruit," as we used to say.

Begin making the chili sometime in the morning, on the day before you are going to serve it. This is because you are going to keep that chili pot hot for the entire day, let it marinate cold all night, and then reheat it ever so slowly and keep it hot the next day until it is served.

Start with very lean beef (this is the low-cholesterol compromise; if you don't want to compromise, use regular beef). Tell your butcher you want a chili grind; if he does not know what you mean, you need to replace your butcher. If he is otherwise a good butcher, tell him to set his grinder on "coarse" and run the meat through once and only once. Better yet, this is what I do: Buy a lean three-plus-pound top round roast. Trim any fat off it. Cut it in chunks about one inch square. The meat is going to cook long enough to crumble anyway, so it does not have to be ground. Next, you should coarsely chop four three-inch-diameter onions. Peel all the cloves contained in a full head of garlic; sometimes, if I am in a garlic mood, I use two heads. Notice that I said "heads," not "bulbs" of garlic—a head is maybe fifteen bulbs. They can be chopped, but they will cook to mush anyway, so why bother?

Pour half to three-quarters of a cup of good extra-virgin olive oil in your big pot and heat it thoroughly. Put in the beef, and set the heat high enough to brown the meat a little. Now add the onions and garlic and

stir it with a wooden spoon while it sautés. If you have fresh basil, by all means put in a handful of leaves. Add one or two large cans of whole tomatoes with basil (my favorite, Hunt's brand, cans it with basil—when I have a garden I sometimes use fresh vine-ripe tomatoes, but don't use store-bought fresh tomatoes unless you have a trusted source) and stir some more. Now add several cans of Swanson's beef broth, enough to cover the meat an inch or two. This will give the chili a rich, undiluted beef flavor. Once it is thoroughly heated, turn the heat down under the pot. Never, never, never boil it. Add cumin to taste.

Now there comes a crucial procedure. Listen up! Put fifteen to eighteen whole red, dry New Mexico or Anaheim chili peppers in your sink—you may want to do this at the time you start sautéing the beef. Plug the sink and run in a few inches of water. Tear off and discard the stem tops and let the decapitated peppers soak long enough so that you can easily slit them up the side with a knife. Open them up. Take out all the seeds, and use your fingers to remove the long vertical membranes up the inside of each pepper. Why is this important? You are looking to produce a deep rich chili flavor, without corresponding firepower. Firepower is not even for Mexicans; it's for macho gringos. Most of the hotness in a pepper is in the seeds and membranes. The flavor is in the thin layer of chili flesh just below the tough skin. When you get them all well castrated, place ten to twelve of them whole on the top of the chili mixture (don't stir them in or you will find it more difficult to fish them out later). Keep the heat on low, and cover with a lid. The other five or six peppers can be laid aside for the beans that you will be cooking the next day. Let the pot simmer for one to two hours. Check now and then to be sure that the heat is low enough to keep it

from bubbling too much. All you really have to do is keep the pot hot—please, no boiling.

After one to two hours—check now and then to see if the whole pepper skins are very soft, but not cooking apart—take the lid off and fish the whole pepper skins out of the brew. I just turn the lid upside down on the table alongside the pot and put the skins on the inside of the lid. When they are cool, drain the juice in the lid back into the pot, place one of the peppers on a big cutting board, and use an ordinary table knife to scrape the chili paste off the inside of the tough, waxy skin. Throw the skin away and repeat with the next pepper. When you have scraped them all free of the chili paste, put the chili paste back into the chili pot. Stir it all together. Place the lid on the pot and keep it hot all day at the back of the stove. After it has cooled, put the whole covered pot in your refrigerator overnight, or if it is a cold night put it in your garage, but cover it with a tight lid to keep the varmints out.

The next day, put the pot on the stove again with the burner on low and let it gradually heat up. Keep it hot for a few more hours. About three hours before you intend to serve it, prepare a pound or so, depending on demand, of pinto beans. Finely chop one or two onions and plenty of garlic, and sauté them in olive oil in the bean pot before adding the washed and dried beans or any liquid. Substitute two or more cans of beef broth for some of the water. Add remaining cleaned, seeded, and de-membrated peppers to the bean pot, and when they are soft, fish them out, scrape off the paste and return the paste to the bean pot. Beans should also be cooked very gently, never boiled. You need only to keep the bean pot hot checking now and then to make sure they are going to be ready at serving time. You do not want to

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overcook the beans. They should be firm and soft, not cooked until the starch is thickening up the broth.

Serve with sourdough bread, buttermilk biscuits, and/or Nabisco chili crackers. Enjoy.



In the summer of 1943, at age sixteen, I applied for an entry-level job at Boeing Aircraft. My three-plus years of work experience made the difference. I was hired and went to work at an incredible—to me—starting wage of 60 cents per hour, with a 10-cent premium for working the graveyard shift from midnight to 8:00 a.m. I was earning \$5.60 per day! My savings started to sky rocket. I also attended summer school at North High so that when the fall term started I could graduate on schedule in January 1944 by taking only two courses. In that way I could finish at North High School and continue at Boeing. It was very demanding, but it did not become burdensome until the following December when Boeing converted from three eight-hour shifts to two ten-hour shifts per day. I made it through the change, and after about six weeks, on January 28, I graduated. In her diary, on January 29, 1945, my mother noted, “Vernon off [work] today, graduated yesterday. Are we all glad [!]? Past 6 weeks have been tough, trying to work 10hrs and go to school. Thank God, another year [before he] is 18 [and draft eligible].”

At Boeing, because of my high school hands-on training in electricity principles and practice, I was assigned to the Functional Testing Department, where I studied the training manuals for the Central Fire Control (gun operation) System on the B-29. It was the first high-altitude bomber with pressurized cabin for the nine-person crew—pilot, co-pilot, engineer, bombardier, nose gunner, two side gunners, an upper gunner and a tail gunner. The gun turrets were remotely controlled by gun sights with electro-mechanical Selsyn (self-synchronous) motors located in the heated and pressurized cabin areas and on the gun turrets outside the pressurized areas. My division had responsibility for troubleshooting the system and aligning the gun sights with the firing trajectories. We learned about compensating for windage as the spinning bullets emerged from the barrels into the high-velocity air and “leading the target” to account

for differential airspeed between source and target. That was the first Buck Rogers armament system, and it was fascinating.

Some time after I got up to speed on the technology, I requested and was granted transfer to the third-shift flight crew. On this assignment, I would be part of the crew that did the final alignment checks on the system and fire-tested all the guns of each aircraft on the ground. There was a large abutment of stacked wood beams backed by an earth fill into which all the guns were fired. Each plane was set parallel to the firing range. The lower aft, lower forward, and upper aft turrets (two .50-caliber machine guns in each) and the upper forward turret (four fifties in a later-model B-29) were aligned on the target range, and we fired twenty-five rounds through each gun. The bird was then turned 90 degrees and the tail turret, consisting of two fifties and a .20-millimeter cannon, was fire-tested, except that the Air Force required fifty rounds to be fired through the cannon; I never quite understood why it was called a cannon, as it spit out rounds like a machine gun. In later wars this turret model would be escalated to batteries of ground- or helicopter-based assemblies consisting of four or more .40-millimeter machine-gun cannons. After firing, we pulled all the barrels and repeat-action loading bolts, and cleaned and reinstalled them. Then the Air Force bought the plane, and it was flown to its base.

About every fiftieth B-29 off the assembly line was flown by the Air Force out to Salina (they filmed *Picnic* in Salina), where there was a hillside gunnery range for in-flight firing. When the bird was returned to the Boeing airfield, we replaced the barrels, cleaned and reinstalled the bolts, and inspected everything. The barrels sometimes had no rifling grooves left in them; it was like looking down the barrel of my dad's and his dad's old smooth-bore, lever-action Winchester shotgun. This meant that the Air Force clowns had been firing the .50-caliber guns in excess of fifty rounds in sustained bursts, and our first thought was to check the props and fuselage for bullet holes. In fact, one plane came back from Salina with several bullet holes in the wings and a prop.

When you fire sustained bursts, the barrels get reddish hot, which quickly ruins the rifling. When so heated, the guns start "cooking off" rounds on their own. When the spring-loaded bolt returns from

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discharging a round, it pumps a new round into the barrel. A very hot barrel will cause the new round to fire without benefit of the firing pin striking the firing cap at the base of the round. Hence, the round is “cooked off.” Bear in mind that these were air-cooled fifties moving through stratospheric air—cold as a witch’s teat—at 300 miles per hour, and you will get an idea of the tremendous heat buildup by .50-caliber-round explosions.

Normally you fire the gun by depressing the firing switch with your thumb on the back of the remote-control sight, causing an electrical circuit to actuate the solenoid that operates the firing pin on each machine gun. Release the switch and the gun stops firing. But if the barrel is at cook-off temperature she fires anyway. It is very dangerous to have a gaggle of fifties cooking off rounds, and it’s a potential source of “friendly fire” disasters, as they are euphemistically called, while the gunner thinks he has stopped firing.

Of course, the friendliest fire of all is that which erupts from your own guns into your own plane, and that expresses the timeless truth that you can indeed shoot yourself in the foot. The B-29 had safeguards against raking off your own tail, wing, or engine in bursts of twenty-five rounds or fewer below the “cook-off” threshold for .50-caliber machine gun fire. The friendliest-of-all-fire problem was alleviated by an automatic fire-interruption mechanism triggered by a silhouette of the airframe as viewed by each gun barrel. Each turret had a large cylinder about ten to twelve inches in diameter at center bottom (or top, if the turret is upside down in the belly), underneath the inside access cowling. This cylinder had a raised sheet of metal wrapped around part of it, the top (or lower) edge of which had a profile that replicated the turret-gun’s-eye view of the airplane fuselage.

It was sort of a relief map of the plane as viewed from the perspective of each pointed gun. This raised metal sheet served as a cam that lifted the roller on a switch that tracked both the azimuth and elevation of the gun direction. The switch was normally on, but it turned off when it rode up onto the cam. So, when the upper aft turret was pointing at your tail or an engine propeller arc, the roller was on the cam profile and the switch, in series with the sight-firing switch, shut down the circuit and you could not fire into your own tail or props

with the firing button. But, of course, it was not completely idiot (we called it “Air Force”) proof. If some yahoo releases a burst of fifty or so rounds and then swings the turret in line with the propellers, he will cook off lots of rounds into his own props before the barrels cool enough to stop firing.

This fire-interruption mechanism was later identified as the source of a faulty design that my crew uncovered on the first of a new series of modified B-29s in 1944.



Modifications were being made all the time on the B-29 as experience in flying and testing it was accumulated. Experience was used to feed back design changes and new rules for maintenance and adjustment of the whole airborne operating system. This is one reason why, decades later, I would find it natural to think of market and other socioeconomic institutions as subject to the continuous feedback of experience with consequent modification of rules and procedures, which constitute mutual voluntary recognition of property rights to act. This thought process always reminds me of the Chicago Mercantile Exchange, with its Constitution and Rules published as a three-ring loose-leaf notebook—a prominent clue to the dynamics of a changing institution. I believe that studying how and why things work leads to generic principles with validity across the spectrum of human creativity.



The new series was to carry a much heavier upper forward turret, consisting of four .50-caliber machine guns, replacing the two-gun turret. This was a monster turret by the aviation standards of 1943. It had to accommodate twice the weight of guns and the supporting structure and drive motors. Each gun had a conveyor tray that fed the clip-chain belt of bullets, each about six inches long, into the magazine for repeat firing. The tray carrying the belt of bullets circled back from the side of the fifty to a large metal box in which the belt

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was snake-wound back and forth like Christmas hard candy until it filled the inventory box to the top.

With this new turret installed, we rolled the first bird produced with the new modification into firing position, and cut loose firing each turret in order. We came to the upper forward; it fired a few rounds, stopped, fired a few more, and stopped again, and so on, just hiccupping away. Eventually, we set the turret at various elevation positions, firing again each time, and learned that the hiccups occurred when the guns were near their lowest elevation limit. The malfunction was due to the extreme vibration of the turret and the cylinder cam, which caused the profile firing interrupt switch to open the firing circuit. When the firing ceased, the vibration ceased, the switch closed again, and firing was resumed, the new vibration opened the switch, and so on. The solution was for Sperry Corporation, which supplied Boeing with the turrets, to design a heavier switch-roller mechanism. The design that had worked for a two-gun turret failed with a four-gun turret.

Another of the more memorable events on the flight line was the belly crash landing of a B-29 returning from an in-flight Air Force test. The crew could not get the nose wheel down. It was impossible to land a B-29 with wing gears only. And there was no manual option for cranking down the nose gear. You press the activation switch and the relays close or they do not. This must have been pretty frustrating to the crew, as the landing gear and control mechanism was immediately below and aft of the bombardier and nose gunner. But there was no trap door access allowing you to kick or crank the nose gear down manually. As I recall, this led to a new modification, allowing manual operation. In this case, we heard that the gear's malfunction had been caused by a loose dropped screw that had been left to rattle around in the gear-relay box.

After circling, trying everything ground control could suggest, and running down the fuel level on board—you want it low before a crash landing—the crew prepared to bring the plane in on its belly. But first, the ground emergency crews brought out the emergency fire trucks and hosed down the ground parallel to the paved runway, making it smooth and soupy with mud and water. As we all watched, with emergency vehicles standing by, the crew approached the lane,

feathered the props, cut the engines, and landed in a huge shower of mud. When the bird came to rest, it was amazing how fast the crew came popping out of that airframe.

The next several days were spent digging down far enough to place screw jacks under the wings, chaining a Caterpillar tractor to the tail to anchor it, then jacking up the frame far enough to get access to the nose gear, lock it down, lower the wing gears, and lock them down. The wrinkled bomb-bay doors were baling-wired shut, and the props—bent around the cowling of each engine—were removed and replaced. The engines were tested and worked fine, so a pilot and co-pilot took off and flew the plane to Tulsa, we were told, for base repair. It was remarkable that it was expected to fly, and did. I developed a high regard for Boeing engineering and manufacturing skill. Of course, the B-29 was founded on a lot of experience with the sub stratospheric B-17, which, according to legend, truly was capable of coming in “on a wing and a prayer,” as one of the briefly popular Hit Parade songs of that era put it.

I am reminded of a recent story I heard that brings back those war years. British Airways Flight 600 is cleared and lands at the Frankfurt airport. The radar tower control officer says in his crisp German accent, “Attention, BA Flight 600. Captain, welcome to Frankfurt; please proceed promptly to gate 8.” The BA captain proceeds to taxi off the runway, but makes the wrong turn in approaching his assigned gate. “Captain, you turned incorrectly; have you never been to Frankfurt before?” The reply: “Yes, in 1944, but I didn’t stay.”

I was turning seventeen years old and Boeing was actually paying me to do this thing called work! It ended in September 1944, after I had worked fifteen months with hardly a sick day. You did not get paid for sick days, and there was no time for vacation, paid or not.

I resigned and began taking classes at Friends University on September 14, 1944 using my accumulated savings to pay tuition, and living at home.

I turned eighteen on January 1, 1945, and was eligible for the draft. While I was still seventeen, I had taken a test to enter the Merchant Marine as a radar technician, which was a much more attractive proposition than the draft. Mother recorded in her diary on December 14, 1944, “Vernon received word that he passed Radar

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test—one of 12 out of 500. Office here has to have authorization to pass his eyes.” December 18: “Vernon left for Kansas City for physical.” December 19: “Vernon returned; feels that they will not grant waiver for his eyes. What a pity if they don’t. He is very discouraged.” In fact, they did not grant the waiver, so I would soon be eligible for the draft.

The Merchant Marine was far preferable to the draft at the time because you could enlist in a specialty like radar, feel assured that you would be so trained, and make a contribution you thought would be meaningful. Failing to get the waiver for the Merchant Marine did not mean that I would be automatically classified 4F in the draft and be ineligible. That was right at the time of the Battle of the Bulge, which lasted from December 16, 1944, to January 25, 1945. Hitler had counterattacked with a great many divisions, including his crack Panzer Divisions and tanks, and local draft boards were reclassifying many 4Fs, preparing to take them if needed. A 4F classification meant that you were a liability to your fighting mates. But in that ferocious battle of the Bulge everyone was a liability to everyone else. Both sides were using all the men available—Hitler was reportedly using underage boys. The Allied strategy worked. The German divisions were badly beaten at great human cost on both sides of the Front. The battle was over in forty days, before there was even time to train and use many new recruits.

My draft number came up, and on March 10, 1945, I went to Leavenworth, Kansas, for the Army physical. The army bused the potential recruits to Leavenworth and back. Someone had dice, and I recall a continuous crap game in the aisle. With my glasses, I tested 20/20; without them I was 20/800. I can hardly read the biggest letters on the wall chart; in fact, both the chart and wall are blurred. To test your hearing the guy across the room softly whispers, “Did you ever shit in your grandma’s hat?” and looks for you to smile. They classified me 1A, but for “limited service” (1AL) because of my poor uncorrected vision. What that meant was that if they badly needed troops, I was available. The local draft board, however, exercised its own discretion based on local conditions: According to my mother’s diary entry on March 18, the board “classified Vernon 4F. We are all very happy.”

By March the war in Europe was going very well. The Battle of the Bulge was turning out to be Hitler's last desperate gasp. Victory in Europe, VE Day, came on May 8. The country erupted into celebration and was much more relaxed. I was not scheduled to return to Leavenworth for another physical until the following August. My mother's diary contains only two minor entries in July and August and none thereafter.

I probably left for Leavenworth on August 5 because I was at Leavenworth on August 6 taking my physical when the B-29 I thought for sure I must have helped to build, but in fact didn't, dropped the atomic bomb on Hiroshima and caused unimaginable destruction. I remember at the time that everyone had a hushed sense that we had just been thrust into a completely new world, one totally without precedent. The destructions of war are, however, relative to your past experience. The Roman poet Lucretius, referring to earlier times, noted that "thousands of men led by the battle-standard were not wiped out in a single day," as in his own day with the invention of "horrible weapons for humanity, increasing day by day the terror of war."

I was shocked by Hiroshima. Why had we not given a warning that we had such a weapon, and proved it by a test on some uninhabited or evacuated island in the Pacific? I was back in Wichita three days later on the ninth when the second bomb was dropped on Nagasaki. Those events soured me on a war that I had felt was fully and completely justified. It was already over in Europe, Hitler and his formidable war machine were dead, and Japan was retreating and losing badly. But two cities destroyed, the first without a threat and test, the second before there was a chance for the political consequences of the first to be determined? Franklin Roosevelt got his victorious unconditional surrender, in response to Pearl Harbor, but I have never felt that the arguments that led to the bombing decision were compelling. It was much more than a measured eye for an eye, a tooth for a tooth, and the "much more" maxim continues to be applied by all sides in Iraq, Palestine, Israel—on and on, without end.



*Vernon L. Smith*

I write the following lines in Tokyo; it's 10:26 a.m., May 25, 2005. I have just read the above lines and had pain of memory from nearly sixty years ago. It's all so different on this day: I had a wonderful dinner last night attended by two score friendly, lovable, bowing Japanese dignitaries, scholars, and businessmen, hosted by Dr. Yukiyasu Sezai, President of Nihon University, in celebration of the opening of the university's Advanced Research Institute for the Sciences and Humanities. Today at 2:00 p.m. I speak at a conference that I am informed will be attended by five hundred people. Three men in attendance at last night's dinner will comment on my talk "Experimental Economics and Electricity Restructuring." They are T. Masumoto (Tokyo Electric Power), J. Nemoto (Honorary Chairman, Japan Business Federation, also the NYK Shipping Line), and C. Minotani (Professor, Nihon University). I have read their thoughtful and incisive comments, which range well beyond my specific topic to deal with scientific method, freedom, moral sentiments, poverty, religion, globalization, and so on. I hope I serve well both Japan and America at these events, and help in a tiny way to make amends for a past that was less than stellar, although my countrymen sincerely believed it was justified at the time.



I am unable to pinpoint dates, but while still living in Wichita sometime in the 1940s, along with my mother, I became active in CORE (Congress on Racial Equality). Our local strategy was to confront segregation against blacks ("negroes," remember, in polite 1940s company) by forming a mixed group of three to five people and attempting to buy tickets for the main auditorium of a movie theater. In those days, there was no way that blacks could sit anywhere except in the balcony of a theater, which for that reason was known as "nigger heaven." Ralph Bunche, long active as a United Nations special representative, Palestine negotiator and winner of the 1950

Nobel Peace Prize, could not have been seated downstairs in the Orpheum Theater, nor bought a sandwich in a downtown restaurant. This was in direct violation of the Kansas State Constitution, which prohibited discrimination based on race, religion, creed, national origin, etc.

It was quite different in Oklahoma, a “Jim Crow” state, with no such constitutional protections. In Oklahoma there was a small all-black town—Boley was its name, and it was east of Oklahoma City and southwest of Tulsa—with the distinction of having a sign on the highway, next to the standard City Limits sign, which read, “White man, don’t let the sun set on your head in Boley.” Although there may have been nothing like that in Kansas, you can be sure that there were those Kansans who thought and felt the same way.

CORE, my mother and I, and a few locals were out to challenge a practice that was in wholesale violation of the state constitution. But we had a major organizational problem from which I would learn a great deal: Black people were not comfortable in joining this effort. In fact we had friends, a black couple who happened to be surnamed Smith, who exhausted the set of black people we could identify who were willing to take a public stand. We challenged at least two theaters, as I recall, which caved in, offering to settle out of court. CORE did not have the resources to make it a test case, without which we could not force any theater to be first in removing the target barrier, and the movement failed to effect meaningful change, however righteous we might have thought that we were.



In the shoebox containing my mother’s diary, my correspondence with Dr. Hertzler, and my dad’s lyric prompts, I found a sheet of paper on which my mother had listed all the theaters in Wichita. Alongside each was a policy status notation: Southern, “no admittance”; Miller, “must sit in back”; Plainview, “separate section”; Wichita, “balcony”; Roxy, “seated in front”; State, “separate section.” Two are checked off with a pencil and have the word *Reaction* written next to them. These were the Orpheum and the Boulevard.

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They may be the two that CORE acted on, but I thought that the Miller was one of them.



Eventually, of course, such practices were “eliminated”—at least in their most blatant and undisguised form—but out of that experience, and subsequent historical developments, I learned the futility of trying to change the social mistreatment of a group without the group’s willingness to make it abundantly clear that they will no longer tolerate the abuse and will actively participate in changing it. It was the Watts Riot in 1965, I believe, that symbolized and effected change in America, not primarily Lyndon Johnson’s Civil Rights Act of 1964. The Act may have been a consequence of some attitude change, but it would not change practice any more than had the Kansas Constitution, which had been in force far longer. Change came when the Uncle Toms were replaced by defiant blacks willing to commit violence in return for the violence they felt inside, who were willing to express it openly, and not just in a sign at the city limits of an obscure and unknown country town in Oklahoma.

That violence is immoral, just as are the practices that incite it. I am not championing black violence, but I believe we have to fess up to its capacity to produce change where voluntary mechanisms simply were not working. The issues, if not the violence, hold true for women’s rights. Women have changed their stand—we have fewer “Aunt Toms.” The language has changed—it’s now “blacks,” not “negroes,” and it’s “women,” not “girls,” although there are plenty who have not got the latter message yet, and that is a barometric measure of the slower progress. What is difficult for women is to live a “no more crap life,” without sacrificing their femininity, and I am on the side of the women who resist sacrificing that in return for some outward male prerogatives that may be of less value to everyone, and who believe you do not have to sacrifice it in order to achieve needed change.

Why did “Negroes” transform into “Blacks”? To me it was clear from my earlier experience. I remember bumping into my friend and Harvard classmate Andy Brimmer years ago at the AEA meetings. This must have been at the height of the transformation sometime in the late 1960s. Andy was lamenting that he had always worked

to help “his people” by speaking out, and he did it forthrightly at various public engagements and functions. He was now encountering resistance, cool receptions, and heckling in his addresses to “negro” audiences, as he put it to me. In particular there was objection to his use of “negro.” I said, “Andy, it’s simple. Why has it always been “negroes” in polite company, but “whites” rather than Caucasians in the same company? For young blacks this is flat-out condescending. It’s projecting a verbal image of respect while underneath it all is a grossly disrespectful double standard, hypocrisy in the extreme. Your black brothers want to be recognized as unabashedly black, through and through, without shame, in fact with pride.” Andy, the son of a southern black sharecropper, had won in a big way swimming against the stream of white society. But it took a honky like me to explain why the language had suddenly taken on such significance, why the old distinctions rankled, why honky noses were being rubbed in it, and why blacks could use the n-word routinely and defiantly among themselves, but there was no way any honky could. It was a symbol of black self-actualization and pride to have the exclusive nose-thumbing privilege of routinely calling each other n-----.



*Chapter 7*  
**From Friends University  
to Harvard University**

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Great teachers are valuable not only for what they teach but more so for the pattern they put on one's life.

—Arthur E. Hertzler, MD

Inflation occurs when prices rise.

—Dwight Eisenhower

Our sole directly related family “intellectual” was my mother's uncle, Sullivan Lomax, who, according to family lore, was left “crippled” by a leg injury caused by a farm accident.

Sullivan's older brother, Quintin Lomax (who had a twin sister, Nancy Matilda), provided more detail in a manuscript he wrote on the Lomax family in the mid-1940s when he was about seventy-eight. I obtained a copy of the manuscript from his granddaughter, Jane Beekman, of Muncie, Indiana. At about the age of three, Sullivan caught his left knee in the crack of a wooden gate. He was held there for several minutes until his older brother William released him. The knee was not properly treated, as no one knew how serious the injury was. It led to a “white swelling” and became so stiff “that he had to carry that leg at almost a right angle.” He was handicapped for life. Being ill-suited for anything “useful,” like arduous farm work, he was passed around among various relatives who could ill afford to keep him, but somehow “he got a fairly good education, and taught district schools in Kansas.” Naturally, this gives me an image of a Mr. Hemberger, but more specialized and educated as a teacher. In 1905, he “entered Kansas University and graduated in the law in 1907. He took up practice in Cherryvale (Kansas).” I remember Sullivan, and

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also his son, Otho, who graduated in law from Washburn College and stayed in Topeka to practice.

The story I always heard from mother was that Sullivan had studied law by correspondence. In any case, my mother and, indeed, all of us were proud of him! Consequently, neither I, nor my parents, nor anyone in my family outside Cherryvale, nor any neighbor or friend had any idea how to go about choosing a college. So I went to the city library, found a book on choosing a college, and learned among other things that the “best” college in the United States was Caltech. Being naïve and impetuous, I decided that I should prepare myself to enter Caltech, as, without further preparation, my C average in high school would not even qualify me to take the entrance exam. A small, very serious Quaker College, Friends University, was located near my home in West Wichita. I enrolled in physics, chemistry, calculus, astronomy, and literature courses for one year, earned top grades, and at eighteen sat for the entrance exams for Caltech in the spring of 1945.

My attitude at Friends University was 180 degrees opposite my attitude in high school. I was a very serious and highly motivated student. I knew what I wanted, and had confidence in Friends’ faculty: Reagan in mathematics, Greenfield in English, Kenneth Andrews in physics, etc. I did not take biology, but Earnest Crow, a fine biologist, was at Friends. I was there to make up for my high school failure to learn, and to enter Caltech.



Very likely I would have greatly benefited if I could have dropped out of high school in the tenth or eleventh grade and gone directly to Friends for two years. Aaron is my wife Candace’s youngest son—now my son by merger. He dropped out of high school, with two years remaining, in Pueblo, Colorado, and managed to deal with a state catch-22. Normally you need a high school diploma to get into a community college, but if you do gain admittance and perform, it makes no difference whether you had a diploma. Aaron went to Denver, appealed to the state commissioner of education to take a qualifying exam, passed,

and entered Pueblo Community College (PCC) without a high school diploma. Two years later he received the degree of associate in science from PCC and was admitted to Colorado College. He finished, and went on to graduate school.

Its not widely known—why should the public school bureaucracy advertise it?—but with a little entrepreneurial spirit you can just drop out of high school the last two years without prejudice and go on to college. If you finish an associate degree, or just get college credits and show a good record, no one will care or ask whether you graduated from high school, and you will be plugged into the academic credentials system. Academic credentials are just one example of what is called “signaling” in the economics profession, and mathematical models of market signaling account for many learned papers that earned three Nobel Prizes in 2001. If you are careful, and work at it, you not only can emit the required signals, you can even get an education, in part by wasting less time and learning less that has to be unlearned later. Insofar as the public schools are evaluated by means of test scores, they would show up as seriously deficient if their most enterprising students bypassed their junior and senior years to enroll and earn associate degrees in community colleges. Public schools are not set up to produce achievement in their students’ lifetime performance; they are set up to yield achievement by students who do not drop out and produce good scores.

While at PCC, Aaron covered two paper routes, treating each of his clients as a personally treasured customer. It is no exaggeration to say that he pampered them, and they loved it. One woman wanted the paper laid on the sill of the window by the front door so that she could open the screen door, reach around the frame, and pick it off the waist-

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high sill *without* going out on the porch. She got it positioned on that sill every morning about 5:00! All customers received their papers delivered to the porch, not thrown randomly in the general direction of the front yard and winding up in mud puddles, bushes, or trees. Other newspapers, delivered by competitors, were picked up and delivered to the porch along with Aaron's paper. Needless to say, Aaron developed an enviable reputation, as do most successful business people who are conscientious in serving their customers. And it was profitable. He collected the monthly bill personally, and enjoyed tips up to \$30 per customer.

Candace and I substituted two mornings for him. It was our Christmas present to him so that he could go skiing in New Mexico. Each of his customers received a letter of explanation from him to the effect that his mother and her boyfriend from Tucson will take over his route for two days so that he can go skiing, adding, and "please be forgiving." Candace and I had detailed instructions, and we did pretty well. I think we made only about three mistakes.

Candace's and now my daughter Annie honored us by graduating from St. John's College in Santa Fe last year. As an admirer of the great books basis for education, I was very pleased by that event. It felt good to be a part of that unusual experiment in serious education.



At Friends University I did a lot of reading that had nothing to do with my courses. My mother's diary entry for October 27, 1944, is: "Vernon is doing fine in College—reading lots outside his school work." I developed an interest in philosophy, science, and the history and methodology of science that has continued sporadically to the present. I read A. N. Whitehead (*Process and Reality*), Bertrand Russell (*History of Western Philosophy*; later, at Caltech, I read *Human Knowledge*), Sir Arthur Eddington (*The Nature of the Physical World*),

Sir James Jeans (*Physics and Philosophy*), Albert Einstein's popular and philosophical writings, and so on.

I lost track of my high school friends—Bob Patterson and Ray Reyes—until much later at North High reunions. I saw Bob at the twentieth reunion in 1964, but not Raymond, who did not attend, and while in attendance there I came to realize why: our Hispanic and black classmates were not welcome—so much for the impact of the Civil Rights Act, passed in the same year as our reunion. Significantly, the Watts Riot, which made a big difference, did not occur until 1965.



I also went back for my fiftieth North High School reunion in 1994. As noted, my twentieth reunion in 1964 was not attended by any of the Hispanics I had known because they and the blacks were flat-out not invited. The same crowd that had run the social life of North High in the 1940s was back behind the driver's wheel in the 1960s. But there had been a modicum of change by 1994, and Ray Reyes was there. Of course, after fifty years the crowd was much smaller; obesity, booze, nicotine, and age—judging from the people in attendance—had taken their toll. I found it strange to be surrounded by so many people I recognized, but who seemed so much more than one or two years my senior. I felt as though I had skipped a lot more than the second grade back in Mr. Hemberger's one-room schoolhouse. But I stayed through the reception and dinner because they had a live big band. Moreover the band was *good*, having warmed up at the dinner with old Glenn Miller favorites like "Little Brown Jug," "Tuxedo Junction," and "American Patrol," and I was looking forward to "In the Mood," "Well Get It," and some Artie Shaw and Tommy Dorsey. But after dinner came all the credits, speakers, reminiscing, the class valedictorian was probably lurking on the sidelines, and it was going on 10:15 p.m.

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Nuts! I got up, left the dinner, and went out to the Marriott desk and asked if there was a country-western bar on the east side of town. Damned if there wasn't: In Cahoots was just across the street and east a couple of blocks. I was out of there. The place had a big Texas racetrack style dance floor (not my favorite, but better than line dancing, of which they had none), a good C&W band, and a big crowd of all ages, as is typical of C&W. My fiftieth anniversary was saved by local entrepreneurship and the cultural diversity of C&W.



At Friends University I became very good friends with a classmate, Lamont Marsh. He was a premed major in biology and an outstanding student. Sometime that year I learned that he had Bright's Disease, which affects kidney function. The outlook was dim. I was quite concerned, and got him in to see Dr. Arthur E Hertzler, who headed a famous clinic in Halstead, Kansas, where he also did medical research. Hertzler commuted part of the time to Kansas City, where he taught at the University Medical College.

Initially, I got to know Hertzler through correspondence about his books, from June 1945 to September 12, 1946. During this period I drove up to Halstead to see him several times. He was a mentor to me, and I greatly admired this forthright, wise, and humorous surgeon. In response to my first letter to him, he wrote (on June 20, 1945), on an old Underwood typewriter: "I was glad to send you the book requested. On second thought I am sending two more—all my non-professional books. I [am] glad to know that you are interested in facts." A religious skeptic, he said he wanted to collect transcripts or summaries of some of the sermons he had been, and would be, listening to on KFJH radio at 6:15 a.m. every Sunday. He wanted me to collect them. "It seems to me to be a worth while thing to collect these sermons and print them in pamphlet form. If this turns out to be a satire of the character of these sermons it is not my fault." He hired me at \$5 per Sunday sermon to collect them and send them to him for selection. In due time, they were published, along with

his written introduction. This was the beginning of a short but very meaningful friendship.

The hospital he founded in an old house in Halstead developed into a full square block of facilities that he eventually transferred to the Catholic Society for \$1. It had some fame and reputation as a goiter clinic, but it housed a range of medical skills, and Hertzler was one of the most widely known general practitioners and surgeons anywhere in the 1930s. He had written a best-selling non-fiction book, *The Horse and Buggy Doctor*, which he followed with a less-popular but still well-known work, *The Doctor and His Patients*. Much less well-known was his final book, *Grounds of an Old Surgeon's Faith*. I read the other books, and soon after I knew him he published the latter. *Grounds* was privately published, and not exactly a best seller—Hertzler gave it away—in the Bible Belt, since its message was essentially parallel to that of H. L. Mencken, but it is much less spicily written than were Mencken's works. Hertzler, however, had an unmistakable compassion for humanity, for healing the flesh and spirits of the many that he had nursed, treated, and cared for. (Mencken is famously believed to not have had such sympathies, but that may well be an injustice.)

I still have a one-inch stack of letters from him. He was impressed with the human capacity to know death, and in the end—always, according to Hertzler—to know and face it without fear, regardless of religious convictions. He claimed that of the hundreds whose deaths he knew intimately, in spite of any of their earlier expressed trepidations, all in the end experienced a peace, an acceptance, a welcoming that made death as natural as birth. Hertzler died of uremia on September 12, 1946, at age seventy-six—my age at this writing. One of only two letters I have from his secretary—he typed his own—Ruth Rose, dated the same day, reads as follows: “The Grim Reaper took our beloved Chief today at 12:25 p.m. I'm sorry you were unable to make that trip [the planned trip would have been when I returned to Wichita from Caltech over Christmas] to see him before he left us. I am sure he would like for you to have a copy of his newest book, *Always the Child*, so will mail you a copy in a few days.” This book was inspired by his daughter, Agnes, a physician whose death much distressed him; he had performed surgery on

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her in a desperate but unsuccessful attempt to save her life, and this weighed heavily upon him. Standard protocol in medicine prohibits a surgeon from performing on his own kin in life-threatening procedures. Hertzler was never one to follow standard protocol.

I was privileged to know this kind, accomplished, remarkable and adventurous man for a short sixteen months before his death. All such deaths seem untimely to those who are indelibly marked by the person and are left behind. I am reminded of what Kahlil Gibran said in my favorite of his books—a book better even than *The Prophet*—“If you can tell me *what is death*, then I will tell you *what is life*” (*Jesus, the Son of Man*).



Hertzler traversed the Kansas back-country roads to make farmhouse calls to treat the ill, tend spirits, counsel families, and perform surgery. He did what was deemed necessary on the spot, often in emergencies with family, neighbors, and friends present and eager to help. They also helped prepare and bury the body of the loved one if Dr. Hertzler failed to deliver the miracle he tried so hard to make happen for every family. Today, instead of inpatient treatment in hospitals, many people are treated as outpatients in doctors' offices, but the cantankerous, unconventional, and committed Dr. Hertzler treated people out-of-office in their remote farm homes or even out-of-doors on the farm.

He reports the commonplace problem that the farmhouses were always dimly lit, and he could not see well enough to perform surgery. His solution was to do the surgery outdoors in broad daylight in the shade of a tree. He reports that the best surgical table is not the dining room table—it's too wide—but rather one of the narrow interior farmhouse doors, removed from its sash and swung across two sawhorses from the barn. After he finished, he went to the next farm, stayed over in small-town hotels, or, where there were no towns or hotels, just slept in

the buggy en route. The horse knew to stay on the road, and even to return home, if he was on his way home. On long treks between calls he relieved his boredom by shooting at startled jackrabbits with his .45-caliber revolver.

He reports that he once removed a kidney whose condition was puzzling and unfamiliar to him. Curious, he decided that he had to take it back with him to his Halstead laboratory for examination and study. He cleaned it up a bit, wrapped it in a few layers of newspapers, and made room for it in his handbag. After staying overnight in a small hotel he continued his journey, only to discover soon that he had the wrong handbag. Returning to the hotel, he found a visibly shaken traveling businessman who had opened his handbag to discover that he surely must have picked up the wrong bag.

But these events are from my imperfect memory. Read the 1938 masterpiece by the doctor himself, and enjoy. You will love this man, this scientist, this surgeon, this family physician so much a part of a long-vanished breed.



I wrote to Hertzler, told him what I knew of Lamont's problem, and asked if he might be able to help. He said, "Bring him to Halstead, we will run a bunch of lab tests, and it will not cost him anything but his time." Hertzler was famous for treating people who could not pay—he just absorbed the cost. The upshot was that Lamont got confirmation of much of what he already had been told. Hertzler said he might last quite some time with a careful diet. Lamont knew that, and would never drink booze, but he died in the autumn of 1945 after I had departed for Caltech.

What was strange was that Lamont had hidden lives. For starters, he was married and had two children, and that was never once mentioned to me, or to anyone that I knew at Friends. He and I had taken a trout-fishing trip to Colorado, staying at the Antler's Hotel in Colorado Springs, so we were not exactly what you would call casual

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acquaintances. Curious about him, I went to see the machine-shop foreman for whom he had last worked. I already knew that Lamont had worked as a machinist. He had once told me how he learned the trade. He applied for a machinist's position at Boeing, completely ignorant of the skill. Before his first day he visited another machine shop to get a better idea of what machinists did for a living, the names of the tools, and what they were for. He reported for work, asked questions, and watched the others, sought help when given a job, and learned the trade. His last foreman said that he had never known a machinist as good as Lamont. His verbal agreement with Lamont was that Lamont was to come to the shop anytime, night or day—there would always be work—leave finished work along with an accounting of hours worked, and the foreman would mail Lamont checks. He said that he had known Lamont to arrive very late at night in a suit and white shirt, take off his coat, don an apron, fold the sleeve twice to below the elbow, perform his work, and get not a spot of oil or grease on that shirt. You get to know some remarkable people passing through this life.

Returning to my preparations for entering Caltech, there was only one hurdle, the entrance exam embracing physics, chemistry, and mathematics. This exam was a unique creation of the Caltech faculty, and the entry decision was famously dependent on how well you performed on that examination, and not upon prior grades. The exam consisted of problems: How fast is a snowball thrown against a wall if the snowball melts on impact? Let's see now, if the mass of the snowball is  $m$ , and its velocity is  $v$ , then its kinetic energy is  $(1/2)mv^2$ . If it takes  $C$  calories of heat energy to convert each gram of snowball (ice) into water, you had only to equate  $Cm$  with the kinetic energy and solve for  $v$  with suitable account taken of the units of measurement. The exam went to the heart of basic principles, and although a working knowledge of mathematics was essential, it required no special mathematical virtuosity.

I passed, took the Santa Fe's California Limited (the Chief and Super Chief were out of my ticket class) passenger train west out of Newton through La Junta, Colorado (where my wife Candace was born and lived as a child), Tucumcari, Clovis, Gallup, and Albuquerque, New Mexico; Winslow, Flagstaff, and Kingman,

Arizona; then Barstow, California, arriving in Los Angeles in September 1945. It was “all the way to L.A. on the Santa Fe,” as the concessionaire announced in each car as he went through with peanuts, gum, candy, pop, and cigarettes. This route became familiar in the next four years, whether I was traveling by train or driving on the parallel famous Route 66. Forty-six years later, curious about the bar in Wellington, New Zealand, named Route 66, I walked in and asked the small coterie of customers and service persons clustered in the rear, “Anyone here who knows where Route 66 is?” The friendly reply: “Where is it, Yank?”

I wrote Dr. Hertzler about the examination and he replied, on September 14, 1945, “Delighted to know that you passed the examination—didn’t expect anything else. Nothing like getting a good start. I have always said to get anywhere one must have at least one great teacher.” Two months later, I wrote him my impressions at Caltech, and he responded, on November 23, 1945, “I am delighted to know that you are in such an important institution. Great teachers are valuable not only for what they teach but more so for the pattern they put on one’s life. . . . I am having heaps of fun out of the Sermons. . . . I will be very glad to hear from you from time to time as something comes up.” I had not realized it at the time, or until rereading this old correspondence, that maybe he and I in some measure actually mentored each other. I can see him as if it were yesterday: tall, gangling like a teenager, sporting a big, ugly, protruding, rough red nose, but gentle, eager, curious, and intensely lovable.

Caltech was a meat grinder like I could never have imagined. The first thing to which one has to adapt is the fact that no matter how high people might sample in the right tail of the distribution of “intelligence,” or whatever it is that measures college performance, that sample is still normally distributed in performing on the materials in the Caltech curriculum. The second thing you learn, if you were reared with my naïve background, is the incredible arrogance that develops in conjunction with the acquisition of what you ultimately come to realize is a really very, very small bit of knowledge compared with our vast human ignorance. My new awareness was captured years later in the story I heard about the difference between

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Harvard and Caltech: “At Harvard they believe they are the best in the world; at Caltech they know they are the best in the world.”

I studied night, day, and weekends and survived hundreds of problems, but what a joy it was to take freshman chemistry from the inspired and inspiring Linus Pauling. A tradition at Caltech was to applaud your professor on the last day of the quarter, but Pauling would be given standing ovations occasionally during the quarter at the end of an ordinary class hour (Bohnenblust, the differential geometer whom we called “Bony,” also received such ovations in freshman calculus). I would also hear guest lectures in physics class by J. Robert Oppenheimer on his frequent visits to Caltech; attend a public lecture by Bertrand Russell; and regularly see von Karman, Anderson, Zwicky, Tolman, Millikan, and other legendary figures of that time on campus. In classes I discovered that one kind of great teacher is the kind that simply thinks out loud, in common-sensical terms of basic principles, and you easily can read his thought processes.

At Caltech I was majoring in physics, but I switched to electrical engineering (EE), which was then in the same division (Mathematics, Physics and Electrical Engineering), as a senior. In this way I did not have to take the dreaded “Smyth’s course.” It was rumored that Carl Anderson, awarded the Nobel Prize in physics for discovering the positron, had flunked Smyth’s course. The course was required for physics majors, but not EE majors, so I received my BSEE on schedule in 1949, unmoved by those for whom it was a big bloody ego trip to take Smyth and pass it. But it was Carl Anderson’s contribution people came to know, not those of the egocentric smart-alecks. I’m sure as hell glad I learned that lesson early enough to save my soul in the here and now and therefore in the future. I wonder: Is lasting knowledge inversely proportional to pretensions of knowledge?

I relished what seemed like the unbending rigor of mathematics, physics, and engineering, but then, as a senior, I took an economics course and found it intriguing—you could actually learn something about the economic principles underlying the claims of socialism, capitalism, and other such “isms”? Curious about professional economics, I went to the Caltech library, stumbled upon Samuelson’s

*Foundations of Economic Analysis*, and later that year, von Mises's *Human Action*. From the former, it was clear that economics could be done like physics, but from the latter there seemed to be much in the way of reasoning that was not like physics. I also subscribed to the *Quarterly Journal of Economics*, and one of the first issues had a paper by Hollis Chenery on engineering production functions. So economics was also like engineering! I had not a clue then how much those first impressions would be changed in my thinking over the decades to come. But in 1962, my *Investment and Production* would have a chapter on engineering production functions. Later, since I taught it as part of the Graduate Theory course at Purdue, the graduate students called the subject "enginomics."

An important distinction of the Caltech program in the 1940s was that 25 percent of the curriculum was in the humanities and social sciences. This requirement, plus electives, plus overload, enabled me to get thirty undergraduate hours in history, the equivalent of a major. Looking back, I really do not understand how I pulled it off. During one quarter I was enrolled in seven courses. History was good at Caltech. I particularly remember John Schutz, also the debate coach, who taught American history, including diplomatic history of the United States—a stretch of the word *diplomatic* for this upstart new democracy. There were many distinguished visiting history scholars at Caltech, attracted by the Huntington Library, who taught seminars and one-quarter courses in their areas of specialty. One British visitor, Davies, taught Anglo-American relations (leaving out the Irish, but then my ancestors from Ireland were not Anglos). It was an intensely interesting course with about five of us enrolled in it.

I was an antiwar protester with a handful of other Caltech undergraduates in those years. I was registered for the draft as a pacifist for limited service (4AL was the class, I believe). I have already mentioned the antiwar stance of Norman Thomas, for whom I voted in 1948. There were two leading national pacifist organizations with campus representation: The War Resisters League, or WRL, and the Fellowship of Reconciliation, or FOR, the latter having a more Christian orientation, but that made little difference to me although it is evident in the life of Jesus how strong are the nonviolent roots of Christianity. I participated in various protests during my four years

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in residence at Caltech. One was in opposition to the first peacetime draft in the history of the United States. As I recall, the wartime draft was expiring and President Truman proposed to extend it. A group of us demonstrated against the draft bill in downtown Los Angeles. In protest some of us mailed our draft cards to the president, while others burned them with much fanfare. There were many non-pacifist types at that demonstration, most notably the local Communists, who cared not a whit for the principles we had tried to articulate. But I knew the history of the alleged Communist attempts to infiltrate the Socialist Party, so I was very wary of them spoiling our day.

In 1957 this radical activist history, which I revealed in detail on my application for a confidential clearance to work as a summer consultant at the Rand Corporation, would delay my clearance, require a complete background check, and ultimately result in a higher rating than confidential—secret. I wonder how many countries so easily enable citizens to overcome their earlier politically unpopular stances. What a fortunate advantage I had in being born in this country, free to think, live, choose, and speak, and to learn and to correct my own misguided early socialist beliefs without subsequent prejudice.

After graduating in engineering, I went to the University of Kansas to get an M.A. in economics as a vehicle, useful in its own right, for allowing me to decide if I wanted to continue in economics. I still think of myself as having two homes in Kansas: one in Wichita where I grew up; the other in Lawrence. At KU I took classes from Dick Howey: price theory, where I came to know the wonderful little book by E. H. P. Brown, *Framework of the Pricing System*, which would lay the foundation for the first two-commodity exchange experiments at Purdue in 1964; mathematical economics, using works by R. G. D. Allen, Jacob Marschak, and J. R. Hicks; imperfect competition, Joan Robinson and Edward Chamberlin; but much more significantly for my deeper scholarly development, a full-year course in the development of economic thought. Howey was a surviving member of an endangered species, a history of economic thought scholar, but it was from him that I learned what a deep scholarly commitment really meant. To be good at whatever you did, you needed to acquire knowledge of all the supporting structure, tools, and primary sources

of inspiration. If you were Dick Howey, and an economic thought scholar, that meant knowing mathematics and being fluent in French, German, and Italian. He was one of the “great teachers” to whom Arthur Hertzler so wisely alerted me. Since I was a country boy who barely knew English, he made a lasting impression on me. His model seemed just right, and it generalized to whatever might interest his students. He also taught a great course in imperfect competition in which we studied Chamberlin and Robinson without getting caught up in their professional feuding. With Dick as a mentor, I decided economics was for me, and I continued by pursuing an economics Ph.D. at Harvard beginning in 1952.

At KU I lived in the Rock Chalk Co-op house. KU was unusual, I believe, in having many student co-op houses for both undergraduates and graduates. It was inexpensive (\$35 per month for room, board, utilities, and laundry facilities) and attracted blue-collar students with little means, no love for the Greek fraternity crowd, and a taste for radical politics. These were postwar inflation years, and we were all trying to get the most out of the dwindling purchasing power of any savings. The co-ops provided me with the social life I had little time for at Caltech.

The Rock Chalk was typical of Co-op House organization. Seventeen house members were assigned to meal preparation and to clean-up crews in teams that fit their class schedules, tastes, and temperaments. The schedule was posted each week. It actually worked. In addition to ideals and principles, there were built-in team and community pressures that controlled the shirking of one’s duties. Freeloaders got in line or would suffer the consequences, but I do not recall any such problems, so well did the work ethic norm perform in these communities. Also it was a temporary lifestyle, we were all self-supporting, and the cash savings were a boon to making it possible to survive. We were good at saving money, but I could have done with less mackerel loaf and no scrambled brains (that sold for cents per pound) and eggs, but that is what the menu team had decreed, and we had to wait for our turn!

At the Rock Chalk I learned to make home brew—beer, if you don’t know what that means. At any of the grocery stores in Lawrence you could buy Pabst Blue Ribbon Barley Malt, light or

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dark, in one-quart cans. We had a twenty-gallon stone crock, so we procured two cans of Pabst malt, ten pounds plus four cups of sugar, a couple of cakes (or packages, if dry) of yeast, and water. Yeast is an organism that consumes sugars and starches, and produces alcohol and carbon-dioxide gas as byproducts.

You cover the crock with a tea towel to keep out the bugs and varmints, and let it brew for four days, checking each day with a flashlight for bubble activity. At first the yeast has lots of food to convert and is very active. The surface of the brew will build up a three- to four-inch head of tiny bubbles. The activity rate slows down (exponential decay) as the food supply is reduced, and the alcohol builds up in the solution, which in turn kills the yeast. That is why, we believed, you can't ferment anything to an alcohol concentration above 12 percent (wine), with beer normally running no more than about 8 percent. Our beer was not that strong. When the bubble formation rate has slowed substantially—which takes about four days—you bottle it in quart bottles and cap them with a hand capper purchased by mail order from Sears Roebuck or Montgomery Ward along with lots of bottle caps. We used a three-eighths-of-an-inch red rubber hose to siphon the muddy beer from the big crock into the bottles.

Now store the bottled beer in the basement. You have to bottle at just the right time for good beer with a natural, carbonated head, but you get a lot of practice when you are doing a crock a week. I developed a foolproof method. The day after bottling the beer, open a test bottle. If it goes “ffftt,” recap it, and it will be ready to drink as soon as all the yeast has settled to the bottom. If it only goes “fft,” you have to face the fact that you bottled it a little too late, and it will be flat, meaning that it will not have a high enough CO<sub>2</sub> content. The beer has to ferment in the bottle just enough to provide good frothy bubbles and a “head” when you pour it. But I learned how to fix it: Open every bottle and add one quarter of a teaspoon of sugar, then recap all the bottles and proceed as if it had been a “ffftt.” This is the low-cost way to recover inadequate “head.” Alternatively, if you open a bottle the next day and it goes “ffffttt,” then open them all for an hour or so, recap them, and proceed as if it had been a “ffftt.” This gives you the right head and avoids a chain reaction of

explosions like a machine gun that you can hear all the way to the third floor. You can drink it as soon as the yeast settles on the bottom of the bottle. We were usually drinking it two to three weeks after bottling, with incessant arguments that it should be allowed to “age,” but we did not want to wait. If you waited you might lose out on our rule-of-capture common property resource, and it was so good that it was hard to imagine that it would get any better. I got so I could hardly drink commercial stuff because it did not have that slight yeasty flavor.

The only other Lawrence location then for making home brew was the Illinois Street Lithuanian Club, one of the radical centers in KU life. It was not a co-op, but housed a ragtag assortment of Bohemian types known to many co-op members. They were not fussy about technique, and occasionally they had big explosions.

I made many good friends, and met my lovely wife, Joyce, at KU. Bob Campbell, my roommate, left for Harvard ahead of me to enter the Russian Studies master’s program, staying on for a Ph.D. in economics. At the Rock Chalk it seemed that he was always studying Russian and Japanese. After completing his Ph.D. at Harvard he became a member of the faculty at Indiana University, where he had a long and very distinguished career as one of the leading Russian research economists in the United States. Bob was quiet, task oriented, competent, and thoughtful.

The co-ops were interracial, which was routine practice in the lives of all of us as individuals, and in the principles with which we infused these organizations. (As I recall there was one exception, and we called it the poor girl’s Phi Chi.) The co-ops had several Mexican and black members. We had no quotas and no special acceptance criteria. Basically, everyone who applied was accepted. Blacks and Hispanics were hardly part of the social mainstream at KU, where we had a lily-white championship basketball team. The star of the time was “Cumulus Clyde” Lovellette, one of the last of the basketball greats when only whites were allowed to play. Clyde went on to play with the Minneapolis Lakers. Of course, there were plenty of great black players in those days, and had been for years, but they played for the Harlem Globetrotters. It had been the same in baseball until Jackie Robinson broke that racial barrier. But for years

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black baseball greats had played for the Kansas City Monarchs, who did exhibition games all over the country. I saw them play the House of David, another exhibition team whose members' all sported long bushy beards; they loved to do hidden-ball tricks using their beards and catching runners off base. Satchel Paige, arguably the best pitcher who ever lived, played for the Kansas City Monarchs into his waning years. He played for a short time for Cleveland before he finally retired, but, even so, did pretty well for an over-the-hill guy holding his own against far younger players.

In fact, racial discrimination was common in Lawrence, at the University, in housing, and in ways that I am sure only blacks could really speak to from their experience. That was the autumn of 1949 and the spring of 1950, four years before the Civil Rights Act and fifteen years before the Watts Riot. I used to go to a black bar, the Green Lantern in North Lawrence, with one of my black housemates. What made it interesting was that I felt very welcome there, and it was a joyful place that literally rocked in cadence with the jukebox music. But I tried to go in once, unaccompanied by my friend, and the owner politely said that he could not allow me to come in unless Andy was with me. I accepted his decision, but I felt the arbitrariness of discrimination. I wanted what could never be: to feel at home and accepted—without a chaperone—in the Green Lantern. So I walked about three blocks northeast to the Tampico, a Hispanic bar where my black friend would never have been able to enter with anyone, even Benny Sanchez, another housemate. I was accepted alone, with whites, or with Benny at the Tampico. Hispanics and blacks simply were denied the opportunity to mix, and did not mix in public places, although each could mix with whites and get away with it in spite of discomfort in the community. I never understood this phenomenon, although there is no shortage of attempts to explain it. As a honky, I was pivotal in being able to bridge the racial divide between Hispanic and black, by moving back and forth across the weaker white/black and white/Hispanic barriers. And I enjoyed being in that position and doing it. If you wanted to learn about life, circa 1949 to 1952, in Lawrence, Kansas, you developed a taste for beer and hit the offbeat segregated bars. My mother gave me the values and my father gave me the personal characteristics that made

that possible, but the experience could never be as complete as I would have wished.

I met Joyce Harkleroad at KU. We were married in June of 1950. She sat in front of me in John Ise's economic systems course and had lovely long black hair. She was a political science major. We were married for a wonderful and adventurous twenty-five years. Joyce was in Henley House, an interracial women's co-op. We decided to see about starting the first Couples' Co-op at KU. Joined by two other newlyweds, we located a big three-story house with a full basement at 1334 Ohio Street, just off the "hill" (the KU campus), which we rented for \$180 per month. We were in business. We had Ralph Ross and Joanne Michner, Bill and Mary Brown, but we needed more people to keep the per capita bills down. So we placed an advertisement in the local newspaper, and Bruce Miller and family showed—one young child. Why not take on kids? A fifth couple was Harry and Norma Kirchner. The "families" divided up the first and second floors, doing some rebuilding to create five sleeping apartments. The landlord was Dave Park, a fine gentleman about eighty, who encouraged us to build partitions with our labor and his lumber, and had a penchant for saving rubber bands that he stored on the doorknobs all over the house. The basement was converted to a very large kitchen and dining area. The third floor was unoccupied, so the small Graduate Women's Co-op moved in and we were up and running at \$35 per month per person, children free. Buhela, a young, blind, black undergraduate, needed assistance, so we offered her a room-and-board "scholarship."

The next-door neighbor, disturbed that we were harboring negroes (Buhela was our second!), told us that he could see that we wanted to provide charity for the "blind one," but what was our "excuse for the other one?" This took place in Kansas, a border state with an excellent constitution prohibiting discrimination on the basis of race, color, religion, or national origin. The neighbor, a fourteen-carat asshole who, as you might have guessed, was also anti-Semitic, eventually took one of us (Harry Kirchner) to court for violating the Lawrence City Ordinance against "harboring a barking dog." Never mind that it was blatant harassment. Since it is in the nature of dogs to bark (except for the malamutes I raised years later in Indiana), the judge

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took testimony on the question of whether the dog barked “excessively.” I testified for Harry, arguing that my newborn twins slept in the bedroom directly above where the dog was “harbored,” and were never once disturbed.

Harry lost the case in spite of the fact that the entire city police force was rooting for us, so much did the police hate our vigilante neighbor who was constantly reporting people—and cars with out-of-state license plates parked in the street for more than thirty days—to the police for trivial alleged violations. The police ignored his reports, so then he reported to the commissioner that the police were not enforcing the law. Of course, we ignored his perpetual window peeping around our house calculated to find us running a white slave operation. The judge found Harry guilty, but levied no fines or penalties.

That would have ended the matter, but one day Harry was walking past the neighbor’s house. Harry had had a hard day at the Lawrence gunpowder plant, and had spoiled a titration that had to be redone. The guy was on the front porch and mumbled some “obscenity” too quietly for Harry to hear for certain, but he had no difficulty imagining what anti-Semitic epithet the old Scrooge must have uttered. Harry bounded up those porch stairs swinging and restrained himself too late to prevent some minor damage. We tried to explain to Harry that he should merely have feigned an attack on the old pest in hopes that he would wet his pants, but Harry was not in a mood to be that restrained. Well, as you can imagine, the old fart brought assault and battery damages, and he had a good case. Harry brilliantly defended himself, arguing cumulative provocation, and we all testified that the neighbor was always spying outside our windows, claiming that we had some sort of “white slave” operation going, etc.—you had to admit that the guy was imaginative. There were lots of laughs in and out of court, with a few city folk sitting in on the entertainment. But of course in the sober eyes of the law it is your responsibility to not allow provocation to accumulate—make your formal charges when the insults occur for the record, and then leave the action or lack thereof up to the authorities. So the judge—delighted, we were sure, from his poorly disguised smirks, that the old racist geezer had gotten punched—did what he had to do and found Harry guilty as

charged, but he suspended the sentence and put Harry on probation for a few months.



I really learned the tremendous nuisance cost of having all sorts of minor prohibitory ordinances on the city law books. It gives arbitrary power and control to local citizens or authorities to apply them selectively to whomever they happen to choose. The process is easily described: Some unusual event occurs—such as a dog barking hysterically—a complaint is lodged with a law-making body, and a law is passed. None of the unintended costs of the law, which are borne by everyone, are part of the decision whether the law is efficacious. Or consider the sexual mores of the day that outlaw certain bedroom activities. The culture changes, but the law remains on the books. The result is a collection of obsolete or minor prohibitions that set the stage for harassment by police or by citizens against other citizens. It's the laws against victimless crimes—prostitution, alcohol, marijuana, etc.—that are the primary source of police corruption, not police efforts to stop crimes against people, including the theft of their belongings. I remember well the Fourth of July in the 1940s on which two Wichita police officers were caught bootlegging whiskey out of the trunk of their city police cruiser on city time.



Bruce Miller and I shared the job of house purchasing agent. We were good at scouting out bargains, like shoulder hams for 25 cents a pound, beef hindquarters at 60 cents per pound, New York Herkimer cheddar for 60 cents a pound—Harry loved that cheese, but we refused to buy the barrel of kosher dill pickles he was always lobbying for. These purchases were all at bulk wholesale prices, and we rented a frozen food locker for the meat.

Bruce and I also bought a 1930 Model A Ford panel truck, advertised by a local rural postman. The postman had bought it new and

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used it for postal deliveries until 1939, when he replaced it with a station wagon. He had cared for it lovingly, but now needed to sell it. The price was \$60. Bruce and I each put up \$30. Later, for \$20, the automotive engine repair class at the famous Native American Haskell Institute in Lawrence overhauled the engine with new piston rings. When my family and I left for Harvard, Bruce and family left for northern California. Bruce bought out my one-half share for \$30, bought a four-wheel trailer, loaded it down with their belongings, and drove the rig across the Rockies to northern California with hardly a whimper.

On May 5, 1951, Joyce gave birth to twins, Deborah and Eric, in that order, and I was part of a rapidly growing family. When they were born, two months premature, the iconoclastic John Ise, KU professor of economics, said, “Yeah, these kids just can’t wait to get out and find what a hell of a fine world this is.” John was the author of many other choice impromptu wisecracks. My favorite quotation was occasioned by the resignation of the local KU Business School dean to accept the presidency of Washburn University Law School in Topeka, Kansas. John said: “Both institutions gained.”



After receiving the Nobel, I was invited back to the University of Kansas to receive its Distinguished Service Award in the spring of 2003. While in Kansas I visited Wichita and gave a talk to Koch Industries’ management. I also gave a talk at North High, where the Koch Foundation supports a student entrepreneurial program. When I arrived at North High, the band, honor guard, and cheerleaders were out in full force to greet me. The cheerleaders—all sweethearts in school red and white—showed me around the building, which had hardly changed. It’s a beautiful sandstone structure, finished in 1932. It still has the same convenient stair landings at the extreme ends of the halls where you could pitch pennies to the wall and easily stake out the approaches so that you did not get caught gambling and redistributing your lunch money. And we visited the cafeteria that doubled as a

study hall, where we could surreptitiously release birds and engage in other diversionary pranks. In the gym, I mentioned the fact that that was where I learned to jitterbug, 1940s style, as every Friday was coeducation day. One of the cheerleaders asked if I would show them how we danced. I did, with her, and the *Wichita Eagle* snapped a picture for the article they ran on my visit. In my talk in the auditorium, I spoke of sitting where they were sitting, in that very room, at a special assembly called on Monday, December 8, 1941, to hear a radio address by President Franklin Delano Roosevelt concerning the previous day's attack on Pearl Harbor, "a day that would live in infamy." We were at war, and many of my classmates sitting in that auditorium with me were destined to die in battle or be lost on bombing raids over Italy or Frankfurt. It was very quiet in that auditorium full of young faces as I reminisced about those days, those war years, and the sacrifices that were endured. I also told them the truth: that I had not been a good student, strictly C average, at North, and that they should understand that it was never too late to get your act together. "Don't let anyone tell you that you are marked, that you cannot overcome a past that failed to shine. You can."



When Joyce and I moved to Cambridge in 1952, my parents used the occasion to take their vacation, helping us by driving Joyce and the twins to Massachusetts in August. I bought a used 1938 GMC pickup truck, had the engine overhauled, and personally rebuilt the truck bed with new two-by-eight planks. I stacked that truck high with all our worldly possessions, including the solid red-gum kneehole desk that I had built from scratch for my woodworking class project in the ninth grade (recall that that earned me my only A and was therefore fit furniture for Harvard), covered it all with a tarpaulin, and drove from Kansas to Massachusetts. It reminded me a lot of the Joads' move from Oklahoma to California in John

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Steinway's *The Grapes of Wrath*. The Joads and I moved in similar poor-folk style, and of course in great anticipation of opportunity. The Joads were disappointed, but I was not; Harvard was for me a warm source of great opportunity, although I was never sure that the warmth was mutual. Arriving in Cambridge, my very first and quite memorable experience was to go into the well-known Wursthaus, just off Harvard Square, for lunch. I sat on one of the high counter stools and viewed the menu. An item that caught my eye was "Chili, Mexican Style," and then came the parenthetical translation: "(No potatoes or carrots)." Welcome to the New England culinary scene—I nearly fell off the stool in a fit of laughter. At Purdue a few years later, I would find that the chili routinely was made with macaroni in it. These outrages are second only to catsup on a finely crafted hamburger or dumped on a Nu Way.

I was the "advance man" for Joyce and the twins, and soon found an apartment at 89 Rice Street, up the block from an Irish pub and the Irish Catholic Church on Mass Ave. (that's New England Yankee vernacular English for Massachusetts Avenue). The pub was known for its custom of serving a jigger of whiskey together with a tall stein of beer. The customer dropped the jigger full of whiskey into the stein, and it mixed thoroughly with the beer as it glugged slowly to the bottom and remained there in the stein until its contents had been emptied. Ugghh, what a concoction—like a blend of wood alcohol and varnish remover! I would just have a beer and look sheepishly around to see if anyone noticed. I guess the Irish boozing syndrome got bred out of my genes by the English; if so, then I am grateful that my English ancestry was a source of something of such great value!

After my parents, Joyce, and the twins arrived and were settled into our apartment, some of us went for a drive in the New England countryside accompanied by a native New Englander. My dad pointed excitedly to one of the farms we passed, saying, "Oh. Look at the rock fence." And the native sternly replied, "That, sir, is a stone wall!" Yes, indeed, and I would also learn that farms posted with No Shooting signs translated into the same stricture as the Midwestern version, No Hunting. Both signs in their respective regions warn you against walking through the fields carrying a gun to shoot at rabbits, squirrels, birds, and some shooters' favorite targets, such as pole-top

telephone insulators. But there are no farm signs in New England referring to the prohibition of hunting, because that refers to people who don black riding boots and a bright red jacket, mount horses, and chase wildly after a bunch of yapping dogs who have flushed some hapless fox.

At Harvard, I took the macroeconomics course from Alvin Hansen—the foremost American Keynesian—who was also very eclectic. In his class, we read everything from Foster and Catchings to Hayek, and not only Keynes, his interpreters, and critics—Hicks, Samuelson, Metzler, Friedman, etc. Hansen’s macro-inspired optimism, circa 1952, was unbounded. I remember well a lecture in which he used some macroeconomics growth and monetary statistics to show that we (or at least he) could foresee the day when taxes could be greatly reduced with no effective deficit: Government would be financed by the government’s creation of money to meet the legitimate liquidity and transactions requirements of the large growing economy. The Federal Reserve would simply buy bonds in the open market at the same rate that the Treasury was issuing them. The economy would be large, and its monetary growth needs equal to the government budget—a “free lunch.” (What is the fallacy here? Alvin thought the economy would grow much faster than government; That’ll be the day, as John Wayne would say.) As Gottfried Haberler said when a comparable macroeconomic bootstrapping point was made by a student in the Haberler/Leontief joint seminar, “So much for ze facts,” after which he swept his great outstretched arm across the table, his long underwear protruding an inch below his shirt cuff.

Keynesian economics at Harvard was much tempered by the dry wit of Gottfried Haberler; the sarcasm of Wassily Leontief; Guy Orcutt’s deeply serious search for the messages hidden in all data; Alexander Gershenkron, who lectured on “ven Breetan vas ze voikshop of ze void”; and a coterie of graduate students trying to make sense of it all for their own careers. When Fritz Machlup visited, you wondered how the two polite Austrians—he and Haberler—would determine which one would go through a door first. Schumpeter was no longer alive, but his ghost was lurking in the halls, with Haberler countering any macroeconomic claims that inflation (“ze monster”

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to Schumpeter, and Haberler would have agreed), if not too large, was good for the health, soul, and spirit of the economy.

At Harvard the graduate students were kept in good humor by a blizzard of memorable encounters, lectures, and imaginative introductions involving both visitors and Harvard faculty. Here are only a few:

- ❑ Wassily Leontief taught the graduate introductory theory course. At the end of a lecture on utility theory a student asked what utility theory was good for. Wassily, hesitating for only an instant, replied, “It’s good for teaching.”
- ❑ In an opening lecture on time preference and interest theory, Leontief explained why Irving Fisher failed to generate a school of Fisherian thought: “Irving Fisher wrote so clearly that everyone understood what he was saying.”
- ❑ When Jan Tinbergen arrived from Holland to give a lecture, Leontief chaired the meeting and introduced him to the audience. When Tinbergen began his lecture, without a trace of an accent, you had the impression that it was Leontief, not Tinbergen, who had just stepped off the boat in Boston Harbor.
- ❑ Gottfried Haberler was the masterful chairman whose hilarious introductions always guaranteed an audience, whether the speaker was local or a visitor like Jacob Marschak. Harvard’s Seymour Harris was a prolific publisher who supervised many Ph.D.s in applied policy, money, and macro topics. If he needed a graduate student for a new book, he would post an advertisement on the first-floor bulletin board of Littauer Center, advertising for some erstwhile lucky student to be funded by Harris on some AID, bank, or government grant program. Gottfried rose, walked to the podium, tall, poker-faced as usual, and gave his shortest and most memorable introduction: “Our speaker today is Professor Seymour Harris. You all know who Professor Harris is. Those of you who are not busy reading his many books and papers are busy writing them.”

For microeconomics I supplemented with courses Samuelson taught down the (Charles) River at MIT. These were very lively,

interactive classes of eight or so students. Except for Ron Jones, I no longer remember any of them. Paul loved to dash into the room, barehanded and empty pocketed, pick up a piece of chalk—in the good old days of blackboards—and ask what the students wanted him to lecture about. He would get a few responses and would start talking and writing on one or more of these topics. A joke that circulated—I have no idea whether it actually happened—was that once, in one of these classes, Paul waltzed in, asked his question and there was only one suggestion. Furthermore, the suggestion was esoteric enough to require a little more than an impromptu rendition from Paul’s formidable memory. So Paul replied, “Well, I thought I would talk about . . .”

MIT had a much different feel from that of Harvard. The halls were light and airy, and if you passed a faculty member in the hall, he (no she’s; I understand from a recent issue of *Science* that MIT is among the last universities to be progressive in this area) would acknowledge or speak to you. Upriver, at Littauer, the halls were dark and dingy, and most of the faculty would walk past you as if you were a lamppost.

After Caltech, Harvard seemed easy, and I got virtually straight A’s. My classmate Dick Quant and I often scored among the highest on exams. But at best one of us was only second—the top score always seemed to go to Barbara Jay, who married an artist and dropped out before dissertation time. Graduate school is an endurance test coupled with the belief that it is worth enduring, but it was not that demanding for me after having survived Caltech’s undergraduate meat grinder.

Living in Cambridge, we Graduate students were also treated with some good laughs by kibitzing on Massachusetts and Boston politics, and by reading the *Boston Traveler*, always alert to the exposé and the anomalous. I noticed that some graduate students, who read only *The New York Times* and were practicing for life’s cocktail parties, were almost totally humorless. Here are a few tidbits, straight out of my memory, and therefore almost certainly there are omissions, errors in detail, and—who knows—maybe some pure fiction.

- At that time, “Ted” (Theodore) Green was one of the FBI’s ten most wanted criminals. He had been apprehended in Boston and was quartered in the Charles Street jail. The jail had been designed for the temporary internment of prisoners until they could be properly sentenced or moved to a more secure facility.

Local citizens were well aware of the jail’s faults, having been reminded incessantly by the *Traveler* that the hated Democrats were not properly protecting us by modernizing the prisons and so on. Ted Green, an escape artist *par excellence*, and therefore a local hero, had already at an earlier internment busted out of the Charles Street facility. In fact, that is what had made him a local hero. Like Willie “The Actor” Sutton, he robbed banks, and you got the impression that that was not an altogether disgraceful line of work on the Boston side of the Charles River, unless you were a Cabot. Once he got past the police guards in a laundry bag carried out in a delivery truck.

We were not to be disappointed. The headlines shortly after his internment proclaimed that Ted Green had somehow managed to get under the hood of a truck and ride out on the hot engine without getting scorched. He was free, like the one who flew over the cuckoo’s nest. However, he was subsequently apprehended.

Some fifteen years later, after Joyce, I, and the family had moved again to the Boston area, I would learn that Ted Green had served a prison term, paid his debt to society, and was out in the legitimate world. A local journalist interviewed him. He was working as a used car salesman in Brookline, and he had an enviable sales record. He had his customers spellbound articulating the relative advantages of Fords, Chevrolets, and other cars as getaway vehicles after a bank robbery.

- The Democrats were always the party in power in Massachusetts. While I was at Harvard, however, Governor Dever was defeated miraculously by the Republican candidate, Christian Herter. The *Traveler*, in this rare political change, sought to make the most of it. Dever had just built a new state prison, and it was a good time for the *Traveler* to go check it out for construction faults—a

dependable characteristic of the Massachusetts construction companies that were always in the news—and blame it on the departed Democrats. Indeed, there were big cracks here and there, and the story carried pictures of these construction faults. But soon thereafter, an even bigger story hit the streets: It was found that the prison had knives, saws, and weapons of various sorts hidden in walls and cellblocks. The Boston underworld had infiltrated the construction crews and planted the tools of their escape trade!

- ❑ Also about this time the Great Brink's armored car robbery case came to trial. This had been a tough case to solve, but the authorities finally had their case together. The principal witness in the case was Specs O'Keefe, who, as I recall, had turned state's evidence. He would get off free if he told all he knew about the greatest robbery of the century (since exceeded). The prosecution was under pressure to move the case along quickly because, as I recall, the three-year statute of limitations would soon tie its hands. Specs had been testifying regularly, and on weekends and evenings he would go visit his girlfriend. The Boston underworld decided to rub him out, so they imported a garden-variety thug, with trademark low IQ, from New York to kill him. So the guest killer trapped Specs in a dead-end alley near his girlfriend's apartment. The gunman emptied his submachine gun at Specs, putting bullet holes all over the alley wall but failing to kill him. As I recall, Specs had fairly minor wounds.

I have heard many other such reports of gross incompetence by lawbreakers, such as those of the Pima County Public Defender, who tended of course to get the worst of the lot to defend. One guy robbed a convenience store and went out to escape in his old car, but the car would not start. He went to the phone booth near the parking area and called a cab. The cab and the police cruiser arrived at the same time, and he was arrested.

- ❑ And then there was Officer Callahan on the Boston side of the river as you crossed over from Cambridge. I am sure it was on the Cottage Farm Bridge over the Charles. The sign clearly states,

*Vernon L. Smith*

“Right Lane, Right Turn Only.” Of course, if you know Boston, drivers routinely ignore traffic, No Parking, and warning signs. My favorite example is driving to Fenway Park, being hesitant to take the last parking place on the street with a sign saying No Parking, and being ordered by a policeman to “hurry and get that car paaarked!” But with Callahan in the center traffic box you bloody toed the line—no exceptions. Above all, you respected him, because this was the one place in the whole damn Boston area where a super congestion point flowed as smoothly as possible, and you had the rule of loudly advertised law firmly in place, and enforced by Boston’s best-known Irishman since the days of Boss Curly. If you came to the crossroads in the right lane and tried to continue, Callahan stepped down from his traffic box and stood squarely in front of your car until you turned, backing up all the honking bridge traffic, windows rolled down for greater ease of cussing. So, one day, a high-ranking city official on important business tried to drive straight ahead from the right lane and was prevented from so doing in spite of loud, angry threats from the driver that he would “get Callahan.” As expected, Callahan prevailed, but he was soon busted to a walking beat. The event was widely publicized, with front-page pictures of Callahan walking his beat. The citizenry was in open revolt, supporting Callahan with a deluge of protests to police and city officials. Shortly thereafter Callahan was back in his traffic box. Sometimes in Boston the revolutionary spirit reemerges, and the people win one against the city’s double-breasted Brooks Brothers suits.

*Chapter 8*  
**Thou Shalt Honor Thy  
Father and Mother**

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Give me courage and gaiety and the quiet mind.  
—Lula Belle (Lomax) Smith; inscribed  
on the back of a wood plaque for a  
therapeutic handicraft task, about 1956

Heap not on this mound  
Roses that she loved so well;  
Why bewilder her with roses,  
That she cannot see or smell?  
She is happy where she lies  
With the dust upon her eyes.  
—Edna St. Vincent Millay, “Epitaph”

I have spoken often here of each of my parents, and there is much more that could be said. But I want to speak of their final years at a time in my life when I was only just beginning to see them as adults rather than as parents. This will lead me to tell you about my grandparents, particularly Grandpa and Grandma Lomax, Billye, and Aileen, and to discuss some of my personal insights and impressions concerning family relationships. Those relationships were complex, sometimes adversarial and emotional, but somehow it was the good times that always seemed to surface in my and their memories, and constituted that which lasted and inspired. The good were also the enduring times. I am not sure why this is so: I was the only one to escape that nest, and I kept moving from one new challenge to another, rarely looking back. It must be because, as some claim, it is the early values from home, family, neighborhood, and particularly parents that ultimately make the difference.

*Vernon L. Smith*

After I left Caltech my father wondered why I did not actively pursue a career in engineering. This stemmed largely, I think, from what would have been his aspirations if such a dream had been possible for him. But I never recall his contesting that decision or any other that I made. He would listen to me, and maybe ask a question, but he would accept what I said and try to facilitate what I wanted to do. He was very much a live-and-let-live can-do person. My mother was also very can-do, but for her the world badly needed changing. My father agreed that it needed changing, but he had a less visibly confrontational approach to making change. Each of their approaches to the dynamics of living was valuable, and I was fortunate to experience and learn from both.

They always lived modestly and could never have lived otherwise, thanks to years of frugality. The frugality was made necessary by their circumstances, but it became an ingrained lifestyle after it became less necessary. After Caltech I was entirely self-supporting, relying on scholarships and earnings from part-time or temporary work, so my parents were able to accumulate more savings. They soon bought an empty lot and built a new three-bedroom home at 324 South Gordon. This one had two bathrooms! They also bought a new 1949 Dodge, my father's first and last new car. Except for this modest splurge, the spending habits born of years of financial hardship changed very little as the end drew near for them, but they continued to provide in-kind support for Joyce and me. They deliberately timed their vacation to help us in our move to Cambridge.

Occasionally, I have been asked if I am related to Adam Smith, whom Kenneth Boulding correctly described as the first great post-Newtonian scientist—other obvious candidates, such as Michael Faraday and Charles Darwin (who was significantly influenced by Adam Smith), came too late, and have to be classified respectively as the second and third of the greats after Newton. In response to the question, since Smith never married, there were no direct descendants. But I have a Chessman family book. My father's middle name comes from his paternal grandmother, who was a Chessman. Inserted in the family copy of the Chessman book are miscellaneous references on the history of the McCurdy family tree, but nothing

specific about the lineage of Maggie Blanche (McCurdy) Smith, my father's mother.

Grandpa, Charles Alexander Smith (1865-1956), born just six years after oil was discovered in Titusville, Pennsylvania was a tool dresser in the Pennsylvania oil fields. He traveled from rig to rig to rework, sharpen, and repair the worn drilling bits as a well shaft was being drilled. He talked to me at length a week or two before he died in early 1956. He had a respiratory infection that evolved into pneumonia after our Christmas holiday visit to Wichita. We probably imported his fatal virus from Indiana. He died in a hospital, after being taken there unconscious. He was a Christian Scientist and would never have consented to being taken to a hospital if he had been conscious. The man deserved to die at home, and his wish should not have been violated.

We had a good visit, unlike any other, in which my grandfather felt that he had conveyed to his descendant key features of oral family history. There was no one else for him to talk with, and I was intensely interested in what he had to report. He had outlived all of his children, and Grandma Smith was senile, perhaps with what later would be called Alzheimer's disease, living in a nursing home. At ninety-one Grandpa was as sharp as ever. As Uncle Norman once said to my dad, "You know, Vern, he can remember the first three-cent stamp he ever bought."

Grandpa filled me in on several details. He had left Pennsylvania for Oklahoma in 1915 following the Tulsa oil strike, and then lived for a time in Riverton, Wyoming, after a new strike there.



Here is my take on the economics of oil-field development, which explains my grandfather's decision to leave Pennsylvania and ultimately settle in Kansas. At that time Kansas produced only wheat and cattle as significant net exports. Oil and aircraft were yet to become major parts of that export base. Tool dressers were in greatest demand immediately after a strike. Once wells were producing, dressers moved on unless it was a big field that would be drilling many more wells. Also, wage offers would

likely have been highest just after a new strike. This, of course, was because there was no local skilled labor pool of tool dressers. They had to be attracted to the area from other regions. The best money was made by those who were not based in one area and could move from strike to strike, scalping off the early and highest wages for several months in each location.

Oil strikes create new boomtowns. They were exactly like gold strikes whose prospects are what moved Wyatt Earp from Dodge City to Tombstone for a couple of years, then on to California, and eventually to Nome, Alaska. That was why Grandpa left the old, depleted oil fields in Pennsylvania. By 1915 it had been fifty-six years since Colonel Edwin Drake dug his first well, where, initially, the oil was so close to the surface that it leaked into the creeks of northern Pennsylvania. Nature can do much environmental damage when left unchecked.

Jack Nicholson's early movie *Five Easy Pieces* was about the lives of roustabouts, who hopped from one oil discovery to another. See the obscure movie *Waltz Across Texas*, filmed in Midland, Texas, if you want to see the "ureal" (oil) business accurately reported from the leasing side. Lease rights to drill were obtained by the "Land Man," who had to be a local who was well known in the community. Otherwise there was no way to get a lease from a distrustful rancher such as the one played masterfully by the incomparable Richard Farnsworth in this sweet, offbeat movie.



Grandpa finally settled in the Wichita area and bought a home. That was because of the oil strike in Eldorado, just east of Wichita. That was his last job as a tool dresser. Feeling financially secure from accumulated savings, he bought some rental property, retired sometime thereafter, and worked only occasionally as a night watchman or on some other part-time job. His roustabout days were over. He

got religion, and he must have lived some thirty-odd years after retiring.

Uncle Norman lived a comparable life, but as a wildcat driller, which did not even have the security of high initial wages after a new field was discovered. It was a crapshoot in which the payoff, if there was one, came at the end of the sacrifice, not at the beginning. Wildcatters were looking to hit the really big one, and of course a few did, thanks to the great R. A. Fisher “folk theorem” that holds that “events of small probability happen at about the expected frequency.” But they dreamed rich, worked and lived hard, and never gave up hope.

Uncle Norman visited us only rarely—and usually when he was in the money after bringing in a well. Then he would pay off loans on his drilling rigs, house, car, etc., and start living out of hotel rooms and “sliding my ass around on that slick leather in hotel lobbies,” as he once put it. But compulsively he would drill some more dry holes, spend his stake drilling and living it up, and get back into debt before another modest strike. He never hit into an important new pool; he just found a few little necks sticking out on the side of a known structure. That was enough, however, to fuel hopes that the next one would be a big hit. The big hit never came.

Dad opted for more stability, apprenticing as a machinist in Cleveland after serving as a sergeant in Company B of the 308<sup>th</sup> ammunition train in World War I. Dad was really the one you could call a “family man.” He wanted marriage, children, and a family, and chose a wife who gave him a running head start and was not averse to adding one more to the sample.

Grandpa Smith and Uncle Norman were always a delight to have around—lots of jokes, wisecracks, and laughs. If it was hot and humid, Grandpa would have some crack like, “It’s not the humidity, it’s the humanity.” Broke, Uncle Norman finally quit the drilling business about 1944 and married a widow who owned a farm in eastern Kansas. We drove over to visit him, and I remember my dad asking him if he had gotten any oil out of that last well we had stopped to see him drilling in Iola, Kansas. He replied, “Yes, about a quart, and I got it all over my clothes.” Norman died of a heart attack on September 7, 1946, less than two years after that visit.

Vernon L. Smith

Many families have a legendary figure in the three contiguous generations of children, parents, and four grandparents. Our legend was Grandma Ella (Moore) Lomax. (I know nothing of the Moore family. My sympathy and admiration for the Irish came through my father and those beautiful Irish ballads.) Grandma Lomax was *the* legend. The rest of us classified Grandma Lomax as—and I am quoting—a “hypochondriac, kleptomaniac, and pathological liar.” Carl, in jest, would refer to her as “Kleppy,” but that was a severely truncated, oversimplified characterization of the complex figure of my maternal grandmother.

Let me give you a collage of true events compressed into a single hypothetical sequence in which Aileen, Billye and Carl, and Grandpa and Grandma Lomax are at our house for dinner. One or two of them might in some actual instances be living with my parents in the downstairs bedroom at the time.

In this instance Grandma might be helping with the family dinner, but, in search of family sympathies and attention, might carry on with many heavy sighs and groans, signaling internal distress or illness. We would all sit down to eat and Grandma would eat nothing or perhaps nibble on something. “Why?” “I have no appetite, and I feel sick in my stomach.” “Why don’t you lie down and rest?” “I want to be near at hand.” More heavy sighs. “Why don’t you go into the living room and lie on the couch?” Now we have a little beacon-flash of truth: “I won’t be able to hear you talk.”

It’s a nice evening and after dinner someone suggests that we all go out and sit in the yard. We clear the table. Grandma delays rising from the table and then offers to clear the last few items. We go out, but my dad slips around on the south side of the dining room to peek through one of the windows. He comes back laughing as if he had been watching a Charlie Chaplin movie: “She’s in there stuffing leftovers into her goddamn mouth with the fingers of both hands.” We all laugh with much thigh slapping.

Later she comes outdoors, still in feigned agony, and sits awhile as we talk—heavy sighs continuing. We ignore her. We talk. It gets darker. Aileen suggests we go in for a card game. Grandma perks up, but then lapses back into her “misery.” We talk some more, and then

rise and go into the house. In the interior light Grandma has much improved—no deep sighs and groans.

Someone, probably Aileen, says, “Who wants to play Pitch?” I volunteer. Silence. Then Grandma announces that she is feeling better, and she will play so that there will be “enough players.” We all know that come starvation, tornadoes, drought, illness, hell, or high water, there is no way that Grandma is going to pass up a card game. In fact, Aileen probably was setting her up, and now she says, “How come you feel better?” And Grandma would have some cock-and-bull story that she had taken some baking soda before leaving the kitchen, and it was now clearing up her pain. So we have three for Pitch, but it’s better with four. So Grandma, who ostensibly is only trying to accommodate the rest of us, simply volunteers Grandpa Lomax. He could not care less, but he knows better than to refuse.

Grandma and I are matched against Aileen and Grandpa. After several hands of Pitch, Grandma has just updated the cumulative score after a hand. She announces, “Vernon and I are ahead.” Grandpa responds, “Well, you’re keeping the score.” And Grandma, now in great spirits and radiating energy, lets out a snort of disapproval. We all knew that she constantly cheated in card games—scoring, adding, peeking at others’ cards, you name it. We sometimes caught her in the act, but to no avail did it bring any change. Aileen was once roped into a game. After playing awhile, just after a new hand was dealt, she laid her cards face down on the card table—these were the old folding card tables that were always ready to be exhumed from the closet for Grandma—and said, “I have to go to the toilet, but I will be right back.” Feigning closing the door, she peeked back into the living room and saw that Grandma had picked up her cards. Grandma examined them and returned them to the table. Of course, Aileen returned and continued the game, saying nothing. When we caught Grandma red-handed, she said, “Well, I’m old.”

If there was a church rummage sale, Grandma always volunteered to help, selling clothes and items contributed to the sale. These were cash transactions, and we knew that she stole from the kitty, keeping some of her sales receipts but allowing some increase in her initial inventory of cash for making change. She would have stolen from Jesus himself. It was all tolerated. We merely tried to maneuver her,

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for example, giving her inaccurate information about when a sale would start, so that when she showed up to help, the only job left was wrapping the purchases.

All this occurred in the 1930s and 1940s. Grandpa died in 1945. Soon thereafter my mother, angry with Grandma over something—I have no idea how it might have started—unburdened herself about how badly Grandma had treated her father. It was a very emotional outburst. I don't recall anything comparable from my mother. It was known in the family that Grandma had had lovers while Grandpa was away on MOP runs up to Genesee, Kansas, for two to three nights at a time.

Mother once related to us that when she and Uncle Denny were eleven or twelve years old, they followed their mother to a place where they suspected that she was visiting another man and “confirmed” the affair (or at least that some sort of hanky panky seemed to be going on). Also, Grandma was always remodeling whatever home she was living in. My grandparents would sell their house, move into another, and the new one would need to be remodeled, as there was always something not quite right. So there were always painters, carpenters, wallpaper hangers, yard workers, etc., to be managed. Unlike so many in those days, Grandpa was employed all though the Depression and made a steady, adequate income. Grandma made sure the income was spent.

When she was in her sixties, and especially after Grandpa had died and her railroad pension had been reduced, she started working as a personal caretaker for “old people,” as she called them. These were typically widows in their seventies and eighties. They were not much older than Grandma, and certainly not nearly as sharp. We never had any doubt that she took them to the cleaners. She would move on if their health or ambulatory ability deteriorated, as then they were too much trouble for her, and she would feign not being strong enough. Her clients were women who used elevators and needed domestic assistance with shopping, cooking, errands, and had to be driven here and there. They lived in nice east side multiple-unit residential buildings.

Grandma managed all these chores, and it was a great opportunity for a little petty theft. In particular, she would shop for her

clients at specialty grocery stores and appropriate for herself some of the food—expensive specialty hams and esoteric canned goods that were never part of our diet when we were growing up. We knew about it because she was always generous with friends and family—giving away much of the contraband to obtain praise and thanks. She would give friends or us a Smithfield ham, cans of fine Vienna sausage, a slab of bacon—things we would buy only on some very special occasions, or never—and have some story no one believed that her client, Mrs. X, was overstocked and gave it to her. You can afford to be generous with other people's money (OPM).

Soon after the twins were born, Joyce, the twins, and I were visiting my parents in Wichita—the South Gordon street home. Grandma was well known to most of the clerks in the major downtown department stores like Innes's and Rorabaugh Buck's. They also were well aware that you had to watch Grandma and nail down all the valuables or she would lift them. It was the summer of 1951, before the suburban shopping malls had decimated the downtown shopping center in the general area of Broadway and Douglas. Anyway, the twins were maybe two months old. Grandma was proud of them, but of course it was always better to lavish affection using other people's money.

The second day we were there, Grandma came home with matching boy-girl light-yellow summer suits—shirt and pants for Eric and a dress for Deborah. She had guessed at the proper sizes, they did not fit, and they needed to be exchanged for suits a size larger. I suspected that she had stolen them, and volunteered to return them myself, as Grandma could not do it until the next day. Grandma said that she couldn't find the receipt, so I have no doubt that she stole them. There was no receipt to find. I was determined to find out. "Where did you buy them?" I asked. She replied, "Rorabaugh's." That was the high-quality department store at the northeast corner of Broadway and Douglas, but she did not want me to return the merchandise.

I ignored her and went downtown to the children's wear section of Rorabaugh's. I identified myself to the clerk and showed her the clothes, saying that Grandma had said that she bought them there. Of course the clerk knew Grandma—who didn't, among those

department store clerks who knew and tolerated her theft? For them it was also OPM, and their loyalty to their employers did not include fingering Grandma. The clerk told me that Rorabaugh's did not carry that merchandise and that Grandma definitely had not been in the store. The clerk looked at them carefully, and was pretty sure that they were from Kresge's, which was just across the street. What is interesting is that Grandma had wanted all of us to believe that she had bought them at one of Wichita's finest. This is pure conjecture, but I suspect that the basic problem for Grandma may have been that she was too well known in the better stores. They had a very slow turnover of employees, and there was a good oral tradition that would have spread the word about "Kleppy."

I went downstairs, crossed at the light, and went to the children's-wear counter on the first floor. Yes, they carried the brand, and the clerk showed me where they were arranged on the counter. I asked if she had sold any that morning to an older woman. "No." She had made no sale from that stock to anyone. So I told her about my grandma and returned them to her. I had caught grandma in a lie and a theft, and I was pissed. It was time to stop the family charade. I returned to Mom's house and told her the story. Grandma was not there—she was out on an errand or just gallivanting around, as usual. I told mother that I had had my fill of it. Now she was stealing to buy goodwill for her generosity using my children. Who needs this crap? I was going to confront her with the evidence—thrift and lying—when she returned.

Mom did not want me to do it. She begged me not to do it. She was in tears. She said, "Vernon what good will it do, or difference will it make? That's my mother, and you and I and the rest of us are helpless to change it." My moral outrage evaporated instantly, as I came to my senses—or rather, my mom's good sense, wisdom, and experience won out. I thought, "How right she is." But I also realized that Mom and the whole damn community were in an unspoken pact to protect Grandma from herself, from getting caught at anything, and from going through the emotional tension of it all. There was more than enough of the OPM problem to go around because usually things did not get returned. There was no proof unless someone wasted the afternoon as I did by playing detective.



I relived all this, as well as my awareness of my mother's suppressed resentment at frequently having her parents living with her, when recently, in writing this memoir, I read Grover's letter to his brother George (see Chapter 1), which states, "Well Dad & Ma Lomax are hear with us . . . Ma she is going to work soon she has her a good job hear in one of the best stores." And in the note added by my mother to Grover's letter, "Mother and Dad are going to stay with us all winter." I wondered if that good job in one of the best stores in Newton, circa 1918, is where the shoplifting began. Or was Grandma already well practiced in 1918 at humankind's oldest form of involuntary income redistribution?



I accepted the resolution of the issue just as Mom had intended it, but I can tell you for sure that there was a lingering sense of incompleteness, of that which cannot be resolved, and I bloody remember it as if it were yesterday. Above all, I remember my mother's pain, trying to reconcile "thou shalt not steal" with "thou shalt honor thy mother and father." None of us could honor Grandma, but—when the chips were down—Mom honored her by defending her. Grandma had borne the brunt of 90 percent of the family's laughs. But it was never funny to Mom, and you know, when I think of it, I really can't remember that she ever laughed with the rest of us. Would any of us have laughed at a relative who had Down's Syndrome? Not on your life, but we made a perpetual joke of Grandma's antics. It was not funny, but we laughed, at least on the outside.

What do you make of all this, reader? You need to understand that the morality underpinning my outrage had been taught to me by my mother, but she tolerated her own mother's behavior. I remember coming home from Cole's grocery with a piece of candy when I was about four. Mom knew I had no money and that Merle Cole was not one to be passing out gifts to the local kids. "Where did you get it?" "Out of a basket at the store." "Did you buy it?"

*Vernon L. Smith*

“No.” So I was marched down to Cole’s. I gave it to Merle Cole, a mountain of a man, and told him I was sorry, and I will never forget it. Suppose someone with the same moral outrage that I felt had turned Grandma in to the authorities. So she would have been fined, or whatever the hell they do with petty thieves. I don’t know. She was ill—a kind of sociopath, I suppose—and had been so all her life. Stealing seemed to be an autonomic disease of her social mind that went with lying and sympathy seeking. But suppose she were sent to a mental hospital, which then and now is a kind of mental and bodily prison. Would that have been a solution? Not then and not now. Yet somehow I believe she should have been held accountable, as I was at age four. I don’t know, though, how it should have been done.



Returning that candy to Merle Cole was indeed a memorable lesson, although it probably was only one of many and I had no need to remember the others. To this day I find it abhorrent when someone tells me about packing up “souvenir” towels—or worse, fine bathrobes—when checking out of a hotel; it’s seen as an entitlement, not a violation of the right of private property and of the imperative “thou shalt not steal.” What is so fascinating to me in retrospect is that Mom had a really strong entitlement attitude toward legally sanctioned government programs for the redistribution of income, particularly “profits,” but at no time did that slip over into any idea of cheating the government. It’s wrong to take from the government charged with taking from the haves and giving to those who have not. In later years I would scrupulously pay all taxes, while taking full advantage of legal tax shelter programs—for example, putting the maximum allowable by law into supplemental retirement annuities. In my fifty-five years of paying income taxes, I have been routinely audited three times. Twice the government owed me money after

the audit, having found I had erred in its favor—now that is *unsettling!*

I was reminded again recently of that seemingly trivial childhood candy episode in reading Paul Omerod's 2005 book *Crime: Economic Incentives and Social Networks*, a study noting, among other important factors in crime among juvenile boys, the importance of social networks and in particular the important difference therein between boys who commit zero crimes and only one—once the latter occurs there is no typical number that an individual commits: "Policies of rehabilitating hard-core criminals have had little success, and . . . are of very much second order importance compared with the need to deter individuals from committing their very first crime" (88).



Well, in the end, Grandma would be severely punished, and it was as a result of my mother's actions, though no one will ever know in what sense it was intended.

I do not remember exactly when I became aware that my mother was suffering from depression, nor do I know when the symptoms first appeared. I did, however, come to realize that she deliberately sheltered me from any detailed knowledge of it. Early in the summer of 1957 she told me that when she was ill it was only with great difficulty that she could lift her arms to comb and prepare her hair. She also told me that she had not wanted me to see her that way. While I was at Caltech she had been hospitalized for a short time, took medications, and sometime later was admitted, perhaps twice, for longer periods to private mental health treatment institutions. I never knew the details, and Billye is no longer here to recount them. It is accurate, I think, to say that she was monopolar.

In preparing this memoir, I read the diary she kept from January 1, 1944, to September 4, 1945. There were many days with no entries, particularly in 1945. Here are some entries about feeling tired, and about family visits; my additions are in brackets:

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February 17, 1944: “[Uncle] Denny, Mother and Dad drove down” [from Kansas City].

February 18, 1944: “Confusion with so many in the house.”

February 19, 1944: “Tired—can’t stand so many around. Mother and Dad make me nervous—I try not to be.”

February 22, 1944: “Mother and Dad left this a.m. what a relief to be alone.”

April 11, 1944: “I am worn out these days—don’t know if I can take it. Meals alone are a job.”

June 26-29, 1944: Every day she records simply, “tired [or] not resting so well at night.”

My father died suddenly and unexpectedly—is death ever really expected?—in March 1954. Joyce and I were living in Cambridge. We flew home with the twins for the ceremony, and to spend some time with my mother. She seemed to take it pretty well, but the next three years would be difficult for her. Her depression became worse. She was hospitalized and was given electroshock (Electroconvulsive) therapy—a routine treatment in those days. She was terrified by the treatment. It was pioneered in the 1940’s and 50,’ and apparently is still used today, but only in severe cases of depression with patients who do not respond to drug therapies.

Hospitalization was particularly difficult for my mother: She lost all control over her life, her decision-making, and her humanity. Thomas Szasz has written extensively, passionately, and knowledgeably about the so-called modern treatment of “mental patients.” Electroshock was called “therapy” by the psychiatrists who were using it on my mother. Their professional fathers had treated masturbation as a disease as late (if I recall correctly) as the early twentieth century. This was reported in a paper by my friend Tris Engelhardt of the Baylor College of Medicine, a renegade professor of medical ethics. The oath of Hippocrates requires one to “abstain from all intentional wrong doing and harm.” I wonder when in the history of medicine the tide turned, and the medical profession began to save more people than it killed.

The fear of electroshock weighed on my mother, and upon her release she was determined to get better. She took piano lessons again and returned to the serious study of music. Some of this I

learned from her, but most of what I know about her return to the study of music I learned from Billye. My mother got better for a time, but then she began to slip seriously, in spite of her determination to improve.

Desperate, and knowing she was a burden on Billye, who took the brunt of the care giving—Aileen was bipolar and no help—mother at first wanted Billye to prepare the papers for her readmission. After the papers were ready and Billye took them to her for her signature, she couldn't or wouldn't sign them. She had changed her mind, she told my sister she did not want to go through with it, and she made no attempt to explain or justify it. This was not without embarrassment for Mom. Billye had gone through much trouble to set it all up and run the Kansas State bureaucratic hurdles since the state, naturally, did not want to give free meals and warm beds to all who applied. It was traumatic because Mom had said that she did not want to return to a private hospital. She felt that her resources were no longer adequate. She worried about money. She would accept no financial help within the family, and she said that this time she wanted to go to Larnard, where the Kansas State Mental Hospital was located.

Every family has its givers and its takers. Billye was a giver like our parents. She was there to do the grunt work not just for Mom, but also for Aileen and Grandma, to do whatever needed to be done. But their taking needs outweighed their gifts. If there were problems to be solved, they were not there, or, worse, they were at the center of the problem to be solved. Billye was so much like her mother, yet, as some might say, stable, but Mom *wasn't* unstable. Depression is not well described by the word *unstable*. Billye just took life as it came and did what needed to be done.

I am so very grateful that in her later years I got to know her as a sister, a confidante, and a dearly beloved friend. I miss her. On balance, within that family, I also was more of a taker than a giver. Billye helped me to learn to give more, or at least be more aware of the gifts of others, and she did it by example. What a really great lady she was. She and Carl were divorced for a few years in midlife. Carl married again, was absolutely miserable, divorced, and wanted to remarry Billye, who eventually consented. Years later she confided

*Vernon L. Smith*

to me that they never bothered to formally remarry; they just told everyone that they had done so.

That summer of 1957 Grandma, Aileen, and Aileen's young son Denny, who was about fourteen, were living with mom. Grandma, Mother, and Aileen had a love-hate relationship, and here they were living together. Denny was destined for schizophrenic oblivion, but that was unknown at the time. That summer, my Mom's home had to have been a monumental snake pit.

I haven't mentioned yet that the other behind-the-scenes joke was Aileen, who had been married seven times. She came in a distant second place to Grandma, who was the primo legend, so she paled in terms of family attention, but she still got lots of local attention since she lived with us in the downstairs bedroom during all the transitions. I will spare you the details of alcoholic husbands (two, one abusive); a jealous teetotaler (he was considered "progress" by Mom) who prohibited delivery and pick-up service drivers from stopping at his and Aileen's house; a couple of born losers, free riders who sponged off her (Aileen was smart, competent, and always had good jobs); and somewhere along the way there were three that passed through so fast that I never knew them by name or person, or even heard any family gossip about them. I can remember only four of their names (Philippe, Ward, Cook, and White), and all together I don't think she could have averaged much more than a year plus per husband. She finally got the message: Don't marry them.

It was the summer of 1957, and I was a summer consultant for the Rand Corporation in Santa Monica. At Purdue I had been working with Abe Charnes, Rubin Saposnik, and others on a research project for the Saint Louis and San Francisco Railroad—the Frisco, as it was known. (Here was another one of the many U.S. railroads whose names expressed hopes that were never realized. The Frisco never got west of Dallas or north of Kansas City, let alone to San Francisco.) We were due to deliver our final report that August at the Frisco home office in St. Louis. My portion of the report was critically important, as it dealt with the railroad's leading policy issue: how and whether to enter the "piggybacking" business. The Frisco management was not sure—but I was sure—that they should enter this new transportation technology. No one else on the team could make my case, and

I had planned to fly back to St. Louis in August. Since my fare was paid it would be a no-cost stopover in Wichita to see my mother on my return from St. Louis. As the time approached, I was in touch with Mom regarding the dates for my visit. I very much wanted to see her, and told her so on the phone, but she was hesitant about it. She had been deteriorating all summer, which was evident in the last two letters she had written just before my expected departure to St. Louis. She never dated her letters, except to write Sat. a.m., but I am pretty sure of the dates I have used below:

*Sat. a.m. (July 20, 1957)*

*Dear Vernon-Joyce-Children*

*Vernon's letter Friday.*

*So glad you are having an enjoyable time.*

*Wish I could write good news to you—guess it is no use to keep the bad news. I think you would be disgusted with me. I am worse each week, but surely there will come a change.*

*Sorry I can't write more.*

*Love*

*Mother*

*Sat. a.m. (July 27, 1957)*

*Dear Vernon-Joyce-Children*

*Received Joyce's letter.*

*I am no better and that is all that I can write,*

*Love,*

*Mother*

It was August 5, 1957, only a few days before I was to depart for St. Louis. I was writing in the library in Santa Monica. I happened to look up and saw Joyce at some distance across the room, walking toward me where I was sitting at a library table. She was normally at home with the twins and Torrie. Something had happened, and I had no clue what it might be.

*Vernon L. Smith*

I was puzzled as Joyce approached, concern writ deep in her expression. She went immediately to the point: "Vernon, your mother has committed suicide."

The details as we came to know them were not the least bit complicated. Aileen was at work. Grandma had gone out shopping and had returned. Mother was not in the house. Grandma went looking for her, but she was not in the garden. She looked in the garage. Mother had hanged herself from a garage rafter using a chain. Nearby was the kitchen butcher knife my father had made for her years ago from drop-forged carbon steel. It was thought at first by the investigator that she had considered using the knife on herself, but apparently the knife was there because she considered cutting a length from a nearby piece of rope. Instead she used a chain. It was so like my mother—a clean job with no mess. Everyone who knew her knew that she would never have used the butcher knife. Even the hanging could never have occurred in the house—no fuss, no mess. Here is the newspaper report.

### **The Wichita Beacon**

*Tuesday, August 6, 1957*

#### *Woman Hangs Self with Chain*

*Services for Mrs. Belle L. Smith, 61, of 416 S. Gordon, whose body was found hanging from a garage rafter Monday afternoon, will be held at 10 a.m. at the Culbertson Mortuary.*

*Mrs. Smith was pronounced dead at 2:30 p.m. by Sedgwick Dean L. Bratt County Coroner. Cause of death was listed as strangulation.*

*The body of Mrs. Smith was discovered by her mother, Mrs. Ella R. Lomax, 79, in a garage at the South Gordon home shared by the two. Mrs. Lomax said she began a search for her daughter following a shopping trip.*

*Bratt said the dead woman, apparently despondent because of ill health, had used a ladder to tie a length of chain over a rafter. The chain used on a porch swing was then wrapped around her neck.*

She surely knew that her mother, not Aileen, would return first and find her. Billye came over immediately. She was living on West Douglas, not many blocks away. Billye said that after mother's body was removed she went through the house. Mother had systematically turned over, face down, every photograph in which her own image appeared. None of the pictures of others only had been moved. She was, indeed, disgusted with herself. She had used these very words to me, in reference to her deepening depression, just a few days earlier on the telephone as well as in the letter above.

Mother believed that all people have the inner resources to overcome adversity, weakness, anything; that was her heritage, her life experience, and her teaching. It was what sustained her. But in the end she failed herself, and she was disgusted with her failure. No bitching, grouching, or carping about someone else failing her—it was her failure to live up to her own expectations. In life she had always done what she had to do, and there was no exception even in her last desperate act.

You could say her timing was perfect. I changed my ticket to leave a few days earlier than originally planned. I went to Wichita for those days and for her funeral. Then I departed for St. Louis, gave my report on the piggyback business for the railroad, and returned to Santa Monica. It was over, over, over, but it seemed strange. At the funeral I was told by many who attended, "Your mother did not know what she was doing." Well, there was no consolation for me in those words, because I knew otherwise. More than once, years earlier, I had heard mother tell of a distant relative, or family acquaintance, who was diagnosed with cancer and, knowing that he would suffer slow deterioration, committed suicide without warning, but left a note of explanation. She admired his courage, which enabled his family to get past the inevitable quickly and conserve the family's limited resources. Over and over she had said that she did not want to be a burden on her children—as I see it, a burden in the way my dad's parents and her parents had been a burden on her.

Mom knew exactly what she was doing. She also had a choice between death and the terror of being institutionalized. Knowing her, I believe it was a deliberate act intended to preserve the one

Vernon L. Smith

thing she had left: her deep sense of personal control, integrity, and dignity. She was going to take charge and do what had to be done.

When I saw Jack Nicholson in *One Flew Over the Cuckoo's Nest* I felt my mother's unbearable terror in the scene when he was subdued for the shock treatment, and again in the surgical lobotomy scene. And did I ever feel good watching Chief as he prepared to escape and flew victoriously over the nest, free, free at last . . . thank God almighty, free at last.

I often wonder if it all could have been different, and if she would have lived, if I had not insisted on visiting her on my trip east in August 1957. She had not wanted that, and I had dismissed her wishes, thinking that I could help, and not really believing or understanding why she did not want me to see her. This desire on her part was a truth that I have accepted. Her action was her choice, not mine, but I do believe that my decision to come and see her nudged her in the direction she took. It eventually became clear: She was disgusted with herself, and more than anything she did not want me to see in her what she saw in herself. Never mind that I would not have seen what she saw. And yes, of course, it could have been different, but also much, much worse indeed. Imagine what it would have been like if she had signed the papers and gone to the hospital for the remainder of her life, living in fear, self-contempt, and loneliness.

The wooden plaque she made in therapy hangs above my bedroom dresser: *Give me courage and gaiety and the quiet mind.*

Mother had astonishing courage and far, far more gaiety than you might think from what I have written, for I saw it radiating from her many times with my father, in her music, in their music—when they sang their duet, “Indian Love Call,” at various public events—and in her love of gardening and tending of plants, animals, and people. In her diary, on March 30, 1944, she wrote, “Vernon worked 15 hours last night [Boeing]. Gosh he is a good boy. 9 months until he is 18. I just look and look at him.” And as reported earlier, the following August 16, 1944, she wrote, “Our 23<sup>rd</sup> wedding (anniversary); thought of it Monday—forgot it today; Vern (Dad) remembered today. A wonderful 23 years. I love him.” She had enough of the quiet mind to have yearned for more, or she would not have chosen

that text for her plaque. I am just so sorry that she did not have more of the quiet mind. “Oh, God bless you and keep you.”



Mom would have a Unitarian service, of course, in a west side funeral home. None of us had much use for the pomp and ceremony of funerals. There would be an open house on the day of the funeral, with friends, neighbors, and passersby bringing in mounds of food and oceans of drink for the gathered family. It was essentially an Irish wake without the open casket and the Catholic touch.

We had to make the arrangements with the funeral parlor. Billye, Aileen, and I decided that the three of us would all go down to the west side funeral parlor and lay it all out with the managers, being certain that it would be exactly the modest affair that Mom would have wanted. No one knew that better than the three of us, and together we would be a unified front that was not going to be fragmented and conquered.

We went into the parlor and were greeted by a salesman. Right away we got our feathers ruffled by this guy. He said that one of the many ways that they serve “a family in their time of great grief is to arrange for all the flowers and manage all the contributions for flowers that will be offered by friends and loved ones: flowers at the parlor, flowers in the hearse, flowers at the grave site, and flowers at the reception.” Well, we were not feeling any great grief at just that moment, and we were there to do business. Billye said, “We want *no* flowers; all contributions will go to the First Unitarian Church, and we want this to be advertised.” The clown says, “We understand, and are happy to do that, but most families, and others who are friends of the family, still want lots of flowers for the loved one.”

Aileen said, “Well, we don’t.” That settled, we asked about the funeral itself, its cost, and our choices. He

said, “The total cost of the funeral, including *some* flowers at no extra cost, is entirely expressed in the price of the casket.” We realized that these guys were determined to sell flowers, whether we wanted them or not, so we didn’t make a fuss over a few flowers the absence of which might be blamed on the mortuary, not the customer. He said, “The casket choices are on display downstairs, and the price on each casket is the total cost to you of the funeral. There is a huge range of choice. You can pay as little as \$90 and up to \$10,000. We provide extra limousines and other services with the higher-priced caskets.” He escorted us downstairs, jabbering all the way about grief, about the mortuary’s task, and “satisfied customers.” I resisted the temptation to ask whether they got lots of repeat business from satisfied customers.

He started us out with the top of the line—a very elaborately tooled copper casket—and a long explanation about the indestructibility and preservation properties of a copper casket. Then there were more copper jobs, which were less elaborately tooled and had thinner copper. “Definitely lower quality,” he assured us. Next in line were two or three aluminum products. I thought, “Uh oh, copper in one grave and aluminum in the next. Wouldn’t this produce a thermocouple effect or “battery action” that would destroy the caskets? But I said nothing. Then we were shown two or three wooden ones with various degrees of plush upholstery. *None* of them had a \$90 price tag. I said, “Where is the \$90 casket,” and Billye chimed in, “Yes, we didn’t see it.” He replied, showing a little surprise, as well as some consternation, at our single-minded dedication to the obvious, “Oh that one is in the back hallway.” We went to the back hallway, and there it was, just a plain pine box in all of God’s glory, covered with cloth, resting on a cheap stand, and waiting for our dearly beloved Mom. I forgot to

mention that some of the other caskets were resting on elaborate waist-high stands.

Aileen, I think it was, said something like, “I like it. It’s got Mom engraved on it. Let’s buy it.” Billye and I agreed. We all stood there looking at him, and the crass guy just lost his gooey composure; he was pissed, really pissed. He said, “You know, we make no money at all, none, on a \$90 funeral! But if that’s all you want . . .” I resisted the urge to thank him for contributing his profit to our mom’s memory. We shelled out ninety bucks cash to the so and so—a tidy sum in 1957—and hightailed it out of there.



So Mom was buried in a \$90 wood casket (with funeral thrown in), and the three of us were delighted and happy to have conspired to get only what Mom could have tolerated, let alone wanted. This was the woman who, faced with a high bill from a physician, threatened him with socialized medicine and then negotiated a reduced bill. If all patients were like Mom, there would be no problem whose alleged solution was socialized medicine!

We had held out against the invasion of the body snatchers. It was our final gift to Mom. She was laid to rest in the last available plot in a four-plot family gravesite in the Maple Grove Cemetery just off Hillside Avenue on the east side of Wichita.

She had finally crossed the railroad tracks to an east side home—in a hearse.

She was buried next to Grover, because it was the only plot left. That was because Uncle Denny and Aunt Marjorie had a child, Dal Lomax, who was born in 1921 and died the same year. Then Dad was buried in a third plot in 1954, leaving just the one plot next to Grover. Billye once said that that did not seem appropriate, because it was dad who was the real father to us all, and we all knew how close Mom and Dad had been.

But who cares, really? We didn’t. And Mom did not care. What we all knew and felt could never be expressed, stated, or captured by any unpoetic ordering of four burial plots.

*Vernon L. Smith*

My hope is only that that casket, that \$90 wood marvel, as I write fifty years later, has rotted to nothing, and that Mom's elements, essence, and love have been recycled back into the prairie earth, where they are needed to honor that ultimate biblical truth: Dust unto dust, with life continuously and perpetually reformed and reborn from that dust. We are here to make our own luck before returning to that dust from which we came.

To the Hopi it's the mud from which they came, symbolized in the mudhead on my silver-on-black watchband—if your culture is rooted where there is little rainfall, on three mesa villages in northern Arizona, you like your dreams to wet the dust enough to call it mud.

There is at least a post mortem, however, to the suicide narrative. Billye looked everywhere for a note, in the garage and throughout the house. There was none. Billye strongly suspected that there *had* been a note and that Grandma had destroyed it. Billye had been in close communication with Mom on the issue of being committed and in discussions of how Mom felt, and she was really surprised that there was no note.

Here, as you can see, is the problem with having a reputation like Grandma's: People make assumptions about you that go beyond the facts; they rationalize beliefs with "facts" that they cut out of whole cloth. It's fair to say that there was not one among us who did not believe that Grandma was capable of destroying the note, but of course that did not make it true, and it may have been a gross injustice to believe that she did.

Throughout the aftermath of the whole affair, Grandma was into sympathy seeking. She got lots of that from her son. Uncle Denny flew in from Missouri for a few days and for the funeral, and Grandma was glued to him like a postage stamp. True to her reputation, she helped herself to mother's things, some household items, a couple of fine blankets, and so on, neither telling nor asking the rest of us, giving them to Uncle Denny, as she reverted to the OPM problem. Billye could call a spade a spade, and as she described it, Grandma stole from our mother in death. That was not entirely accurate, however, and Billye would agree with me. Grandma stole some things from the living who had inherited what Mom had left;

but the real gift she left for us all was a heritage that could not be stolen: an example of how to live and how to die, whose value was immeasurably greater than any of the trinkets and blankets that her mother expropriated in death.

I never saw Grandma Lomax again, although she lived for many more years, ninety and some change. True to form, she went to live with Uncle Denny and Aunt Marjorie, who had no use for her. Grandma must have had a field day: the local department store clerks would not have been on to her for a while! There was a big falling out between Grandma and Aunt Marjorie, and Grandma moved to her own place; I did not know the details, and I did not want to.

Finally, there was Aileen's son, Dennis Ward, whose father was an alcoholic woman abuser who was killed in a head-on collision, along with a woman in the car, somewhere near the Kansas-Colorado border. There was much conflict between Denny and Aileen, and when he was sixteen Aileen called to see if we would take him to live with us because she could not handle him. I knew that Aileen also had her own agenda, but refusing for that reason was not going to help Denny. In fact, no one could help him, but I did not know that yet.

We took him in. I do not recall the decision process. Joyce had every right to feel put upon, but she never complained and we decided to give it our best. Denny came by train, and I picked him up at the station. What Aileen had not mentioned to me was that she had told Denny she was sending him to my family because of his "bad behavior." He had not come voluntarily. He must have harbored the idea that I was an instrument of punishment. Essentially, Aileen had made the whole situation more difficult. I resolved to get on with it and ignore a history that could not be changed. Denny enrolled in the local school and made one "friend," and soon the two of them put together a plan to run away to Wichita. Somehow, without train tickets, they got to Chicago on the New York Central, changed to the Santa Fe, and were heading for Wichita. They failed to elude the Santa Fe conductor and were turned over to the sheriff in Chillicothe, Illinois. The sheriff called me. I explained the circumstances, and he said that Denny could not be released, except in my custody.

*Vernon L. Smith*

I drove over to Illinois and signed the papers that sprung him from the brig. I never read the papers, which no doubt held me liable for something or other, but it made no difference in terms of the action I was committed to take. When we returned, I repeated what I had told Denny earlier—that we would do our best to make a home for him. If he wanted to go to college, I would pay for it, and that was an opportunity for him that would not be available in Wichita.

After our return, my dear friend, colleague, and rock of support—the ultimate giver—John Hughes, said, “Let me talk to him. When I look at that nephew of yours, it’s like looking in the mirror.” John had often told me that he was saved from drinking, carousing, and whoring by the clarinet when he was fifteen. He was good at playing that clarinet. It had given him self-confidence and had proved to him that he could master something. John was expressing the wisdom of Kansas quarryman McClure Stilley. John could speak to Denny as an insider. He spoke with eloquence, but the message fell on deaf ears.

Denny said that John told him (in John’s characteristic, no nonsense, this-is-how-it-is style) that he had the opportunity of a lifetime, saying, “Do you have any idea at all that your uncle is actually an honest man? You will someday learn there are precious goddamn few such people anywhere in this world.” Denny had two comments: that John was sure a cynic, and that what I was offering him was a “good deal.” Denny just didn’t get it, and that was why it was destined not to work. John told me that he had the urge to reach into Denny’s brain, pick up all the scattered cards and sort them into one complete deck. But John could not do that and no one else who tried would be able to do it either.

What became clear was that Denny had no sense of himself in social relationships with others. Sometimes he seemed dangerous, but I was not able to put it all together at the time and understand it. He returned to Aileen, and episodes of mental illness kept surfacing. He was treated, eventually hospitalized, then released, and hospitalized again. I couldn’t keep up with the bewildering details. What reliable information I got came from Billye. Aileen was like Grandma—she eventually took over that role, and even looked like her as she grew older—and might tell me almost anything, which Billye would then

have to correct. Aileen was bipolar with big-time ups and downs, but the medications were getting better, and she was able to function well enough to avoid that black hole that can strip you of life, liberty, and the pursuit of happiness—today euphemistically called the mental health hospital.

Denny was discharged from the hospital, and after awhile he decided to join the Navy. Incredibly, they took him, and that has made me wonder about the Navy's ability to defend us ever since. It was, however, a benefit to Aileen, who no longer had to pay for his hospitalization and treatment. Denny was in the Navy only a short time, but it was long enough to get socialized (veterans') health benefits. It was not long, incentives working the way they do, before Denny was permanently committed. The mental health system was now into the world's deepest pocket: the U.S. Treasury. Denny was diagnosed officially as schizophrenic, as I recall, although the diagnosis seemed to drift around over time with different modifiers, such as "paranoid." I saw him only once after he returned to Wichita, although he called me collect a few times to check my views on whether China was about to take over the world, or some other idea that would not loosen its grip on his mind. He died in the hospital an old man at about age fifty-seven. He was horribly addicted to nicotine. Billye said his fingers were stained yellow and his body reeked of tobacco. What a waste, but what could have been done to prevent that waste?

*Vernon L. Smith*



*1938 Aileen*

*Thou Shalt Honor Thy Father and Mother*



*1940 Dad, Mom in costume for "Indian Love Call."*

*Vernon L. Smith*



*1946 Grandma (McCurdy) and Grandpa Smith*

*Thou Shalt Honor Thy Father and Mother*



*1951 Joyce, Dad, Deborah, Mom, Eric in porch swing  
at Couples Coop, 1334 Ohio, Lawrence, Kansas.*

*Vernon L. Smith*



*1956 Marlene, Grandma (Moore) Lomax, Cindy, Billye, Mom.  
Five generation picture with Marlene's newborn daughter.*

*Chapter 9*  
**Above All to Thine  
Own Self Be True**

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I have terrible working memory. . . . As a result I have a hard time doing things that involve multi-tasking, like trying to make change and talk at the same time.

—Temple Grandin and Catherine Johnson, *Animals in Translation*

There may sometimes be a fine line between what people call madness and what they call genius (M/G), and this theme has been mined many times. Long ago, attention to the M/G mix was mentioned in the study of European royalty. Early in the last century eugenics was perceptively criticized by those who had studied the genealogical reports on royalty and were at a loss to see how anyone could execute any kind of meaningful pre selection for breeding. It is a wise man indeed who can separate the sane from the insane, although society maintains the pretense that it has this wisdom. Herein, I can only speculate based on what little is known.

It's not a nature vs. nurture issue, although on both sides of this ridiculous and politicized argument there are people who want the default state to be the one they favor, unless the other is proved beyond all scientific doubt. If one of two identical twins, whether the twins are reared apart or not, is diagnosed as schizophrenic, the other has a much better than 50 percent chance of being schizophrenic, but it's less than 100 percent. (Bear in mind that each identical twin is a genetic clone of the other.) That is consistent with the hypothesis that schizophrenia is shaped by both inheritance and environmental factors. Certain environmental "insults" in the latter are believed to be part of the picture that provides the interaction between inheritance and the environment. It is nature *and* nurture. Neuroscience is

*Vernon L. Smith*

today on the trail of attempting to sort some of these factors out, but it has a long distance to travel.

What we do know is that there is huge variation in how brains and minds work, even among closely related kin. I had a bipolar half-sister on lithium and other chemical treatments for the last few decades of her life. Billye said that Aileen would become confused about whether she had taken her medication, and take it twice; that she confused the dosages on different medications; that she was lithiumed out. Denny, my half-nephew, was schizophrenic and once cut his wrists. Several times in her later years, Billye, looking back, reported that she thought that Grandpa Lomax had suffered from depression. I certainly remembered him as withdrawn, aloof, and quiet, but I always thought that was a conditioned response to Ella, who seemed to be giving him hell most of the time. Then there was my mother, who became seriously depressed, and suicide was her escape. Furthermore, unlike Denny, when the time came she chose a method that left no room for error.

But Billye and my dad, so far as I know, were never depressed. And if I have ever been down more than a few minutes, I have no memory of it. I recover quickly from “irritation, anger, fear, traumatic experience,” which are words used by others to which I find it difficult to relate—my brain does not linger and dwell; concern about something is not disruptive, because my brain goes to work on a solution, finding a way out, and that process crowds out what I hear people describe as worry. This is not something I consciously will or plan. It’s my autonomic brain doing its thing.

For example, my mother’s death and its surrounding circumstances qualify—by anyone’s definition—as traumatic. What was my reaction? I went to Wichita, a stopover on the way to St. Louis, heard the whole story, went to her funeral, and took the plane on to St. Louis. I gave my oral report on the piggyback issue, my brain totally absorbed in that project and reporting out through my conscious mind what it had learned. Nothing else interfered with that focus on reporting out to the Frisco management—president, vice president of operations, vice president of marketing, and other people who listened with intense interest because it was important to them. After the funeral, therefore, I returned immediately to life, thereby

playing out the most important lesson my parents had to teach me. I think this was neither callous nor heroic; it was simply my brain doing its thing. I don't naturally dwell upon and worry about things that I cannot change. In his *Second Treasury*, Kahlil Gibran said, "Do not give up hope or yield to despair because of that which is past, for to bewail the irretrievable is the worst of human frailties," but I am skeptical that you can will yourself to do that.

All this variation over three generations seems to go with the brain/mind development territory of the *Homo sapiens* line. Of course, there is huge cross-sectional variation in the particular characteristics that cluster in family lines. This nature/nurture diversity is the stuff of human change across space and time, and is how we got out of Africa, some time in excess of 40,000 years ago, to where we are in this snapshot of time—warts, computers, biotech, terrorists, nanotechnology, and all.

My references to *brain* and *mind* are deliberate. I will use both terms at various times in this narrative. The brain is of course a bodily organ, and it has been said that the mind is what the brain does for a living (Timothy Goldsmith), but that seems to ignore so much that the brain does unmindfully on its own. In my more restricted use of the term, *mind* will be a metaphor referring to the brain circuitry that operates with deliberate, conscious self-awareness. *Brain* will be the metaphor I use to refer to everything else we think or do. When you are driving your car your mind is not thinking about driving your car, unless you are in driver training. Mind or "attention" resources in the brain are scarce, and our brain has evolved mechanisms for conserving those resources for high-priority tasks. To quote F. A. Hayek, "If we stopped doing everything for which we do not know the reason, or for which we cannot provide a justification . . . we would probably soon be dead" (*The Fatal Conceit*, 1988). Yet our brains trick us into believing that "we"—the mind—is in tight executive control of all that we think and do. A natural extension of that mental bias or egocentrism is the belief that all useful social systems, traditions, norms, and institutions must necessarily be the result of someone's or some group's deliberately constructed plan. For example, it was once believed that language had been invented by some great genius in unrecorded history, and the same is true for money and markets

and the great “shalt nots.” The origins and functional operating characteristics of social systems as forms of emergent order are visible neither to the conscious mind nor to society.

This is the perfect time to talk more about how *my* brain works. As I see it, faint, moderate, or strong shadows of the M/G nexus on one or more of thousands of possible dimensions are found in every normal brain. Brain science is about how *the* brain works, emphasizing, as is proper, what has been learned about the common features across the workings of all brains. But I believe that most of our learning about the brain will come from the study of the breadth of extreme variations in particular mental characteristics, across individuals in the population. It’s the breadth of variation, not the average that is significant in humans, and perhaps all primates. I want therefore to say something about how I think *a*, not *the*, brain works.

In particular, I will focus on mental self-perceptions in only a few areas: defective switching, and overcoming it through mental hyperconcentration; sociality; oral presentations; and working offline and reporting out.

*Defective Switching.* I have always had what my mind has gradually come to recognize—by comparative observation of others—as a brain task-switching problem. When I am thinking, writing, or composing, I pass into another world of experience, a world that is isolated from my surroundings. I experience many chaotic but loosely connected thoughts. One, then another, rises and there emerges a hint of how they are to come together. I have a strong sense that underneath these aware thoughts there is an iceberg of activity—trying, testing, and sorting—because of the coherence in what can pop to the top. When something rises, I store it in memory, or better yet write it down, and move to the next natural thought pattern in sequence. I used to drive from Sherborn to Amherst each week, lost in thought as I drove, and sometimes I would stop on the roadside to scribble down some resolved mental output.

If I am interrupted, I lose that state of complexity in which I am trying to identify and sort out some kind of order, test it against common sense, and relate it to what I remember from experience—experiments or other observations that may be relevant. Recovering

that state of complexity and inquiry is difficult. In fact, I usually have the sense that I have not recovered that state, but rather, at best, only something like it. Consequently, interruptions tend to leave a residue that takes the form of a gnawing and disturbing sense of irretrievable loss, especially if my brain is in the process of reporting out to my mind. Interruption, therefore, imposes switching costs out and back in, and it can take me ten or twenty minutes or longer of mind/brain wandering to pick up those threads again. I believe that this mental deficiency, or weakness, has produced a conditioned response: My brain stays on course and refuses to be distracted by the mind's attempt to reprogram and redirect the brain's attention somewhere that it does not want to go. My brain has learned to ignore the mind's attempt to intervene and redirect cognitive effort.

The brain knows things that the mind does not understand, so why bother to retrain the mind? It's better to ignore its inefficacious protestations.

This minute, I am having the time of my life, writing in the Admiral's Club in Chicago with a wonderfully and gloriously welcome three-and-a-half hour layover before proceeding to Anchorage. I went to the Philly airport early to stand by on an earlier flight so that I could have a longer uninterrupted session here at this desk. I won't even divert long enough to check e-mail—a distraction into temporary oblivion.

*Sociality.* Defective switching creates a corollary social problem that I have always had difficulty managing. In ordinary social interaction I can usually interact, keep up, and respond meaningfully in a dialogue, although even there it is possible for me to suffer fatigue, and my mind relaxes enough to let the brain take over. But add a third person and I soon get lost, left behind. My mind is still into the last follow-on thought when someone else responds or interjects something, and my scheduling algorithm stutters. I switch slowly and miss hearing or understanding the initial added information. I often can figure it out from context, but sometimes I get it wrong. (That gets harder as you get older, when "the torch has been passed" sounds more like "the porch has been gassed.") Then another thought is expressed, and soon my mind is lost to the complex whole from which my brain is attempting to extract some essence.

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With several people interacting, I am likely to miss half of what is going on—afterward someone refers to a statement that was made, and I do not remember or even recognize it. “When did that happen?” “It happened while you were sitting right there between us.” I am even surprised that it transpired. My contribution, if any, even if it is said to have depth and significance, is limited to a subspace of the entire exchange. While my brain is lagging behind, working on an earlier expression from someone, it is not connected to other aspects of the conversation.

In private mental constructions—modeling, studying, writing—I seek and import new information when I am *ready* for it, and I’m not ready on somebody else’s timetable. My brain, on autopilot, controls the pace of idea development and interacting sporadically, *only as needed*, with others, the literature, new observations, and other imported information. My brain is not easily shaken from its track by my mind. In normal social situations this process of interaction between mental representations and input acquisition becomes chaotic and confusing for me, except when the situation becomes focused on a particular topic of investigation in a common problem-solving context. Then I can keep up and may even set the pace.

Does this mean I have Asperger’s Syndrome, believed to be a form of “high-functioning” autism? I am not sure that is a well-formulated question. What exist are infinite variations on the mental theme of being human. Among so-called Aspergians the variation will encompass a particular part of this whole set: It’s called individuality, the most human feature of humanity.

Simon Baron-Cohen, who has long studied autism and its variant forms, writes of one of his cases (a professor of mathematics and winner of the Fields medal, which is comparable to the Nobel Prize, but causes much less worldwide hoopla) in his *The Essential Difference*:

In the presence of visiting colleagues, he would often just leave them chatting with his wife, and withdraw into a book. He said that he was able to be with one other person, one on one for short periods. If he was in a group, he would get confused and withdraw. He said it had always been this way . . .

As for chatting on the telephone, he admitted that he avoided telephones. I raised an eyebrow. “Why?” I asked. . . . It was the social part that confused him. What were you supposed to say to the other person? When was it your turn to speak? When were you supposed to hang up? How were you to know how to finish or start a conversation?

I can relate to the one-to-one versus group conversation problem but to only some of the specifics of his reaction to telephone use. I have long not liked using the telephone, and I generally avoid using it except for professional conversations. I do not know why, but I do not normally feel comfortable chatting on the phone and generally do it only for a short time. It’s the “loose wheel” feeling I get at cocktails parties filled up with people who are “strangers” even if I know them—talking heads talking about things that I do not follow closely. There are exceptions, occasions in which I feel a strong one-on-one connection with the topic and the person, and become completely absorbed in the telephone exchange. The exceptions are always cases in which I and the other person have a commonly defined task, discussion, or exchange that we are equally engaged in pursuing. Then my shared attention circuits work at high energy levels. But usually that does not happen to me. I resist calling someone out of the blue, or someone I do not interact with regularly. I also am not sure I would know how to start or end the conversation.

Often—some might have said characteristically, but I am trying to tell it the way *I see it*—I have been known to just fade away and go to bed before guests leave. No offense is intended, but I feel exhausted trying to keep up with the overload of input, especially if there are a couple of voluble people in the living room and it’s not a conversation likely to rivet my attention.

I am reminded of the joke about the woman who asks, “How can I tell you what I think until I have heard what I say?” That is emphatically *not* the way I come to find out what I am thinking. Conversation can get in the way unless I am ready and eager for it.

Baron-Cohen’s book, *The Essential Difference*, contains four appendixes, each of which includes a test. His book is mostly about

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male/female differences in the occurrence of autism and Asperger's Syndrome, which will not concern me here. I will say only that it has been known for some time that autism disproportionately affects males, which strongly hints that it has a genetic basis carried predominantly with the inheritance of sex. The tests, and my scores on them, are as follows:

1. "Reading the Mind in the Eyes." If you score more than 30 out of 36 maximum, you are very accurate at reading a person's expression around the eyes. This was a very easy test for me. Moreover, my sense of having gotten almost all of them right was a correct assessment. I scored 30, which suggests that I am good at interpreting facial language, but that may simply tell you what I already know: I should be able to handle one-on-one interactions, but not group social interactions where reading the eyes becomes much more difficult and I depend more on the auditory sense. It is perhaps relevant for me to add that unless I am face-to-face with someone with whom I am conversing, it is harder for me to stay focused on what we might be sharing.
2. "The Empathy Quotient." 0 to 32 out of 80 is low, and most of those with Asperger's or high-functioning autism score about 20. I scored an abysmal 8/80! I could not believe it. The questions seemed straightforward to me, and the answers weren't obscure. I not only scored very low, but that fact was not even remotely part of my expectation and self-perception. I went back to reread all the questions, and there was not a one that I would have changed to make it more self-representative. That one stumps me!
3. "The Systemizing Quotient." Average is 20 to 39 out of 80. I scored 34, well below the Asperger's and high-functioning autism levels. Most men score around 30. Most of the questions, however, do not apply to the things about which I have learned to systematize later in life. Systematize here means and includes not being able to pass on something that "needs" attention. I should retake it from the perspective of my younger years. For example, as a Harvard graduate student, circa 1953-54, I once could not start my 1941 Cadillac. That weekend I unbolted the engine heads, ground and reseated the valves, installed a

tune-up parts kit, and drove it many more years. It's yes on questions of having to stop and get things fixed that gets you a high Asperger's score. I no longer have time for such distractions. The opportunity cost is too high, so I use the market. I think, however, that this earlier behavioral characteristic has become more refocused (I keep learning) on my regular work. There are two exceptions: One is gardening. I lived in Arizona for twenty-six years without missing the planting season window for some treasured plant; likewise for twelve years in Indiana. Later, being too much away from Tucson to plant, it weighed on me a little that I have missed out on something so important. I am now relocated in Orange, California, and into planting. The other exception is cooking. I still absolutely have to cook from time to time, if not regularly as in the past. I say to myself: "It's your mother, stupid."

4. "The Autism Spectrum Quotient." Very high, 32 to 50 out of 50, is where the Asperger's and high-functioning autistics score. I came in at 34.

Most of the research on autism and Asperger's has appeared in the last fifteen or twenty years, so understanding, diagnosis, and evaluation are still very much under development and subject to reinterpretation, and no doubt prone to a great deal of misinterpretation and error.

Here is a thumbnail description of Asperger's Syndrome from the Web site [www.aspergersinformation.com](http://www.aspergersinformation.com):

The main characteristics of an Aspergian are a deep focus on a specialist subject or area (or consecutive areas), a difficulty in understanding human interactions and human social codes (almost like being an alien trying to understand a strange species) and thus also a difficulty with changing environments which need to be learned and adjusted to. . . . Aspergians tend to have a normal to high intelligence, often coupled with a special skill or ability (e.g. extraordinary mathematical or linguistic abilities).

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This particular Web site is very self- (or better, Asperger-) serving, as it contains much anecdotal information on the accomplishments of Aspergians, but the quote is typical of information that can be gleaned from other Asperger sites and from the growing literature on Asperger's Syndrome. I invite the reader to research it more.

I have plenty of deep focus, going back to the farm when I was intensely interested in how everything worked: the protocols for everything from harvesting a chicken to Mr. Hemberger's classroom. I have never seen myself as having a social problem, but in recent years others have differed with me on this, pointing out that my eye contact is poor, especially when meeting new people (and look at my dismal empathy quotient, only 8 out of 80). Others, including family, continually report that they feel they have to fend for me as social interpreters.

I don't care for most cocktail party talk, and most gossip bores me to tears. What bothers me most is that people are less disciplined in their utterances about people who are not present. I automatically tend to judge people by the distance between their private and public positions; in extreme cases their stance is a function of who is listening—the popular image of the politician. My trust for a person instinctively varies inversely with that revealed distance. But I can get suckered into that syndrome for short periods and that is why I do not like participating in gossip.



There is a management style that I do not like and believe to be disastrous. The head, director, or other officer communicates bilaterally with all those relevant to decision making. He/she never goes to a meeting without knowing in advance what the outcome is likely to be. His/her modus operandi is to acquire lots of asymmetric information. Bullshit: Bilateralism begets bilateralism. Everybody is encouraged, even forced, to play the game. The consequence is productivity well below its potential, trust turns into distrust, and the old Italian proverb reigns supreme: "It's good to trust, but better not to." Managers who utilize this style have a hard time surviving, because people don't

trust people who don't trust anybody. What made the economics department work at Purdue University was openness.



Compared with many I am no doubt less guarded or socially sensitive to what others might think are inappropriate topics of conversation. I don't find it natural to vary what I say about anything as a function of who might be listening. It is too damned complicated to remember what the hell you told to whom. If I don't trust people whose positions vary with the audience, why should I trust myself in harboring this characteristic, and why should anyone trust me? My discussion above of my family, their interactions, and their expressed or supposed mental problems focuses, I know, on issues that are not normally discussed, but I find it natural to tell it the way I see it. When it comes to what people consider mental illness, conversations either stop or focus on abstract others. That is why such conversations are so shallow and utterly meaningless.

The "changing environments" part of the definition of Asperger's applies to me interpreted as what I call a switching problem in social interactions. But I have no trouble changing cities, places, audiences, and countries to give talks and attend other events in a hectic schedule. Those situations, however, are pretty formal, and I generally operate in them at arm's length.

My IQ, 130 (measured for the first time at age sixty-eight), is said to be high, but there are lots who are higher. I have always heavily discounted IQ, and I believed that mine was not high until I finally went through all the testing in 1995. I was wrong about my own IQ, but I still cannot shake the sense that my capacity to hyper-focus has been far more important to me than measured IQ, although the two are probably correlated.

This "mental deficiency" has given me a great advantage. I believe that being slow to achieve focus and having a switching problem led somehow to an adaptation in which I easily and happily developed a capacity for deep concentration that blocks out the external world and helps me to maintain thought continuity. Why do I say that being slow is an advantage? More than anything else, it keeps me from ever getting the idea that I fully understand something and

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am finished with an inquiry. My mind may think otherwise, but my brain has learned to ignore it—my brain would not give my mind the time of day in deciding when a program is finalized. It's the instincts of the brain that I trust, not my rationalizing mind. All my life I have encountered smartasses who are quick to learn and catch on to something and do not shrink from letting this be known. It's self deception for them all the way down.

One of the greatest human social diseases is the belief that we have conquered some long-standing intellectual puzzle and can enshrine it in a teaching curriculum, or a law, or a textbook, as final truth. Yet it is clear that we live constantly in a world of revisionist scholarship—monetary history, economics of slavery, standards of proof in mathematics (the standards are sociological and keep changing in one-upmanship style), language development and learning, child development theories, love and sex, post-post-modernism, women's studies—and revisionist history, but such constant reminders fail to cure the social disease. Post-modernism is the champion: *If one applies its own arguments to it, it cannot be taken seriously.* And that, I believe, is because the mind/brain nexus does not consciously experience evolving understanding and indirect evidence, although it can adapt over long periods of time. Just think how long it took modern humans and their cultures to accept that the earth is not flat, as the brain experiences it, but round, as the reasoning mind reinterprets the external world in the light of non-local observations. Somehow, the round perception of the earth became integrated into the brain's autonomic mental construction of the world. How does that happen? How does the mind reprogram the brain to accept that the earth is not as it appears—that truth is in the representation, not the direct sensory experience?

That adaptation, however, is very narrowly restricted to individuals' spatial orientation, not to the corresponding time implications. We all still have autopilot trouble with time changes when traveling. The brain's folk physics of time is still back in the fifteenth century. My brain does not automatically sense that it is getting earlier, that my watch has to be set back one or more hours, as the jet flies west with the night. It's my mind that reasons that the earth is turning east into the sun, that the airplane is speeding west, and from that

reasoning I deduce that the clock must be set to an earlier hour because the sun is now further (lower in the sky) to the east relative to the plane's position. Worse is the brain-shocker that upon crossing the international dateline in one of my many trips to New Zealand or Australia there is a discontinuous jump to the day ahead. You leave Los Angeles on Qantas at 10:30 p.m. Sunday, fly west for some fourteen hours, and arrive in Sydney at 6:00 a.m., with the day breaking behind you, on Tuesday.

"Tuesday?" asks the brain. "I thought you claimed that it was getting earlier in the day." "Of course, stupid," says the mind. "Just imagine two tennis balls, one the sun, the other the earth. The earth rotates forward, clockwise, relative to the sun. It keeps getting earlier in that day, but there has to be an arbitrary north-south line on the earth where each new day begins as the earth rotates into the sun. When you cross it traveling west you are in the new day. When you return from Sydney, flying east, you get that day back (without even having to pay interest). It's easy!" And the brain says, "Easy! Well screw you, smartass."

*Oral Presentations.* With lots of experience and practice, it may be possible for people to become less self-consciously aware of how they are coming off in public speaking. The mind is hell-bent on preparation for everything, including any oral presentation, by outlining in advance what it should talk about when the time comes. The mind fears that the brain cannot be trusted to organize its knowledge in real time. This is because the mind mistakenly and egoistically thinks the brain works incoherently in fits and starts, and requires executive control by the mind to keep it on track. It would be more accurate, however, to say that the brain develops the order that emerges and then deceptively proceeds to fool the mind into thinking the mind is in control of that emergent order. (See Michael Gazzaniga's 1998 *The Mind's Past* for a fuller development of this important neuroscience finding.) Of course, there is no reason for the mind to understand the brain, much less itself, without the tools of neuroscience—if even then—any more than the mind can understand the physics of elementary particles or that the world is round without the machines and thought processes that leverage the brain's input into a more abstract but coherent interpretation.

At some point I was able to give talks in which my brain seemed to bypass my mind and do its thing directly with listeners. My mind casually listens to what comes out, but does not pay very close attention. Candace sometimes asks me what I said at some speaking event I attended that day that she did not attend. First I draw a blank—"Let's see . . ."—and then something may come to mind, but without the stimulus it will take a while for it to come, and it may not come at all because my memory of it is not consciously accessible. Then, while I am working on a problem, or writing, I will use an idea and immediately recall that I actually developed it (that is, it emerged) in that talk. Somehow, brain to mind to natural language is a monitoring/translation process that entails high transaction costs and interferes with communication with other brains/minds. But one can learn to skip the middleman we call mind and let the brain do the talking.

If you do not know what I am talking about, I think it's for precisely the same reason—although different circuitry is involved—that a concert pianist cannot tell you in words how he translates the notes in his brain into finger execution to produce what you hear. Nor is the skill in the last analysis teachable any more than you can teach me how to be a concert pianist. But we learn from neuroscience that "brain to mind to natural language" is not even how it works. This is an instance of the egocentric mind's misinterpreting once again. The sequence is more like brain to natural language, with the mind simply observing the output with a half-second delay. The mind is not even a middleman, although it can wreak havoc trying to intervene, which is why it is feasible for the mind to learn to trust the brain to organize and express itself in real time.

Today, if I give a talk planned ahead by my mind, say as an outline written on paper, my brain tends to intervene and edit, modify, even abandon the mind's work and fit the words into a real-time stream that it (the brain) likes better, and senses to be more appropriate for the audience it is experiencing in the here and now. This is why I used to like overhead transparencies, which I had learned to use out of order better than PowerPoint. Think of it this way: The planning mind can operate only on the basis of memories of similar past experiences and try to anticipate a speech-delivery event in an imagined

future. When that future arrives the brain is there. Nothing about the context and circumstances needs now to be imagined. All the mind has is this stuff it thought up earlier, on the basis of a forecast, and it has no current input unless it returns to the well. The brain can bypass all those stored prepared-paper notes, go directly to the primary input memory sources, and redo it all by directly translating its mentalese into natural language.

When a presentation has a narrow time constraint and/or is relatively formal, I am more likely to read from text, but modified by marginal notes or in real delivery time. This is because my brain is lousy at external time-keeping, being wont to get lost in its own mentalese; so I write it all out in advance and stick to the timetable to keep the chairperson from descending on me with the hook.

*Offline Brain Functioning.* Everyone, I think, has had the experience of retiring after the mind has been working on a problem, a concern, or a decision. You wake up and you have a fresh perspective that enables you to get to a resolution of the issue. In fact you may even wake up with a full-blown solution and wonder why you did not see it before. I have that experience regularly, but also I have it anytime I return to a topic in my brain's inventory of ongoing projects that I have not been focused on consciously. My mind returns to some topic, at midday in my office, after changing flights in the airport, after finishing a talk, and so on. My brain reports out, and it's not in the same state it was in when I left it. I have a sense that the brain has been cranking away offline, and it has no intention of distracting me by reporting out what it has been doing with what went in, and it may not even find it worthwhile to remember for me what went in.

Since the recent increased interest in the study of autism, there have appeared a few books written by people who have been identified as autistics, Aspergians, etc. My favorite of these is Temple Grandin's *Thinking in Pictures*. It introduces readers to a remarkable window on the workings of a different mind: how she has learned to overcome her incapacity to function intuitively and naturally in social situations; her success as a professional in the design of perhaps a third of the cattle-handling facilities in the United States; how she prepares and gives public addresses using an outline of her

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main points, each of which triggers a “videotape” in a vast library of such tapes in her brain; her personal views about autism and her experiences with other autistics. I have met her and heard her speak from notes, and I could almost see the tapes being loaded and reloaded—absolutely and totally without eye contact either with the audience or with anybody one-on-one. But it’s wise to listen to her, as it is well worth the concentration.

There are also many reports of events in the lives of well-known public figures suggesting they may have been high-functioning autistics, but identifying them is a hazardous and speculative preoccupation. However, I have such a candidate in Adam Smith:

He was the most absent man in company that I ever saw. Moving his Lips and talking to himself, and Smiling, in the midst of large Companys. If you awak’d him from his reverie, and made him attend to the Subject of Conversation, he immediately began a Harangue and never stop’d till he told you all he knew about it, with the utmost philosophical ingenuity. (From Alexander Carlyle’s *Autobiography*, quoted in James Buchan, *Crowded with Genius*, 2003.)

But as Buchan observes: “*The Theory of Moral Sentiments*, when it appeared in April 1759, showed precisely what Smith had been up to during his reveries.” Smith’s later reveries led to his much more popular, but no more significant work, *The Wealth of Nations*, in 1776.

Good show, Adam.

## *Chapter 10*

# **The Good Land**

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I come down to deliver them  
out of the hand of the Egyptians,  
and to bring them up out of that land  
unto a good land and a large (land), and  
unto a land flowing with milk and honey.

—Exodus 3:8

In April of 1955, as I was finishing my Ph.D. dissertation, and Joyce—a bedrock of support—was typing it to conserve our cash, our second daughter, Torrie, was born, beautifully red-haired for life. The twins were soon to have their fourth birthday, and we were looking forward to my first authentic full-time employment as a professional.

In August we moved to my first professorial teaching-research post, at Purdue University, nestled in comfortably familiar Midwestern plains. Em Weiler was department head, and he interviewed me sometime in early 1955. Actually, this was the second as I had also been interviewed by him in 1954. He said that he was interested in having me come to Purdue, and that if any other university gave me an offer before he got back in touch with me, then he wanted me to be sure to call him before I accepted it. Later, those of us ending up at Purdue would learn from each other that Em left the same message with all of us, as this was a strategy for obtaining and using the dispersed information in the new-Ph.D. market to make his own decision. Em understood markets and knew how well they reflected information far beyond what any one participant could assemble on his own. He was tapping those wellsprings of dispersed private information.

In time I would receive offers of offers from the Harvard Business School and Hofstra College, an offer from Princeton (\$3,750 for a family of five—they have got to be kidding), and one from Carnegie

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Institute of Technology (later Carnegie Mellon University). I declined all of them except the last one. I called Em and informed him of my offer from Carnegie Tech; he made me a competitive offer on the phone, and I accepted it. Purdue seemed just right—unstructured, full of opportunity, with a great department head. Purdue offered \$5,200 for a nine-month contract; Carnegie offered \$6,000 for an eleven-month contract with summers devoted to working on a funded project unrelated to my planned research program. I no longer remember what the forgettable funded project was, but I recall that I had no interest in it. They needed someone to do whatever work they had proposed in order to get the grant. I had not yet learned how the grants economy worked. At Purdue I would control my own summer time and receive no additional summer pay, which would enable me to write *Investment and Production*. I already had in mind the manuscript for that book, based on research I had done for my thesis but had chosen not to include. I had deliberately narrowed the content of my thesis so that Joyce, I, and the children could get out of Cambridge one year after my prelims. Most graduate students at Harvard seem to stay on interminably, and it's hard to see the value added.



I had a single-minded commitment to finish that book. The next test of my resolve was in late 1959 or early 1960. John F. Kennedy had been elected president and was putting together his administration. My Harvard classmate, Otto Eckstein, called to invite me to Washington to be on the staff of the Counsel of Economic Advisors. It was tempting. Jack Kennedy was a very charismatic and popular figure, whom I liked. Moreover, his tax cut was destined to fuel a 1960s growth spurt, but I told Otto it was essential that I not be diverted from finishing my manuscript, which was then nearing completion. Also, I said that I was not a macro person, but he said that was a good reason for them to recruit me. I suggested that he try me in another year. He did, but I still did not go. The fact is that I had my own agenda, and following some-

body else's was not my cup of tea. As I think about it, that had never been my cup of tea. You cannot believe the number of people who thought I was crazy, passing up such an "incredible opportunity," but I felt that it would have deflected me from the opportunities that I was already pursuing, and I had plenty of support from my close Purdue colleagues. (If I am ever reborn, I hope to be a madman yet again.) One of those opportunities was experimental economics. In 1960 I was working on my first publication in a field that did not yet exist, but unaccountably would come to exist.



I would gradually come to learn that, circa 1955, I could not have gone anywhere in the world and found better colleagues or a more nurturing and supporting environment. I felt that this had been the right decision although I had no idea yet how incredibly right it would turn out to be. I wrote John Ise at the University of Kansas and told him of my decision. In his answer, on June 10, 1955, he wrote, "Purdue should be a good place for you. Like you, I wouldn't be too enthusiastic about a job at the Harvard Business School, or indeed in any school in Massachusetts. The general environment there always depressed me a bit."

We moved to West Lafayette, pronounced *Law-fayette* at the University, *Laaa-fayette* by the townies, and *Lay-fayette* in the countryside. The conductor on the New York Central called out all three versions as the train approached the Lafayette station: "Next stop, for *Lay-fayette*, *Laaa-fayette*, *Law-fayette*."

In the autumn semester of 1955, I taught Principles of Economics, and found it a challenge to convey the basic microeconomic theory of markets to students. I could bend the curves and manipulate the equations as well as anyone, but how does any market actually approximate a competitive equilibrium, if it ever could or does? I and nobody else, and none of the pretty books, could answer that question. One night I was unable to sleep; the topic was on my mind. I went through a thought process after which I resolved that on the first day of class the following semester I would try running a market

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experiment. The experiment would give the students an opportunity to experience an actual market, and me the opportunity to observe one in which I knew, but they did not know, what were the alleged driving conditions of supply and demand.

But let me backtrack to 1952, when my fall classes were beginning at Harvard. The tradition at Harvard for anyone who had already received any graduate instruction was to attend the first meeting of all the first-year course offerings and decide which ones would be taken for credit, which ones audited, and which ones bypassed for second-year courses. Since I had already taken Dick Howey's course in Imperfect Competition, I thought I would probably not need to take Chamberlin's course, but I attended the first meeting to get a better idea of whether I was right. At Harvard your main task was to pass the prelim examinations, and to do that, courses were not required, although they were relevant to achieving the economic maturity necessary to deal with the questions you would have to answer. For example, I had impressive classmates such as Otto Eckstein, who had come from Princeton, where he had been such a superior student that he had taken many of the graduate courses before getting his B.A. At Harvard Otto essentially bypassed the entire set of standard first-year courses.

Many generations of Harvard graduate students had been exposed to E. H. Chamberlin's beginning graduate course in Monopolistic Competition. On the first day he would set the stage for the semester using a classroom demonstration experiment showing that competitive price theory was an unrealistic and unworkable idealization of the real world. In his demonstration, he gave half the class buyer reservation values, and the other half seller reservation costs. The value/cost environment was like Bohm-Bawerk's *Capital and Interest* (1884/1959) representation of supply and demand in a horse market with multiple buyers and sellers in two-sided competition—probably Chamberlin's source of inspiration. I knew Bohm-Bawerk's work because of Dick Howey's course, but I did not fully pick up on the close parallel with Chamberlin's experimental supply and demand protocol until decades later. Chamberlin, unlike Bohm-Bawerk's description, had the buyers and sellers circulate, form pairs, and bargain over a bilateral trade; if the pair succeeded in reaching an

agreement, Chamberlin would post the price on the blackboard; if unsuccessful, each would seek a new trading partner. This continued until the market was closed. The prices in sequence were volatile and failed to support the equilibrium prediction.

Chamberlin used this first-day exercise—showing that competition did not work—to pave the way for teaching his theory of monopolistic competition, which was devised to replace the “failed” standard model of competition. It would be several years before I would fully appreciate the obvious: Chamberlin’s strategy, showing that theory A (supply and demand) did not work, said nothing about whether theory B (monopoly or monopolistic competition) would work. Thus, when I did monopoly experiments, using the incomplete information condition as above, I found little support for the monopoly price and output prediction. That economics is “storytelling” is not at issue (all fields are). What is unconscionable is that some of the stories should be so patently false, or at least not shown to be credible.

Wide awake in the night, I decided that I would use a variation on the generic value/cost setup used by Chamberlin, but change the institution. I also decided to repeat the experiment for several trading periods to allow the traders to obtain experience and to adapt over time, as in Marshall’s conception of the dynamics of competition—that is, equilibrium was a state that would be approached only if the conditions defining it remained stationary long enough for the equilibrium to be established. But Chamberlin had run only one trading period. Without repeat trading there was no opportunity for Marshallian adjustment over time. No one knew the dynamic institutional diffusion process that determined “long enough,” or how that process worked, but experiments might make it possible to learn. For the trading institution, I reasoned that if you were going to show that the competitive model did not work, then you should choose a more competitive trading procedure, so that when the competitive model failed to predict the outcomes, you would have a stronger case than had been made by Chamberlin. I did not doubt that Chamberlin’s hypothesis would be confirmed, but his approach seemed too blatantly committed to verification.

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I figured that if there were competitive markets anywhere, the stock and commodity markets in New York and Chicago would qualify. I needed to find out how they traded in these markets. I went to the Purdue Library and found a great textbook by Leffler, *The Stock Market* (1951), giving details on the bid/ask double auction used in the stock and commodity exchanges. This book was published well before the two revolutions in finance: the first proving that, rationally, the value of the firm was independent of the mix of debt and equity financing, except that if you believed this theorem, since debt payments were tax free, all financing should be from debt; the second showing that all information relevant to share value was quickly incorporated into the price of the stock, and therefore, unless you had an inside track on undisclosed information, all the information relevant to determining a stock's value information was already in the price. Because it was in the older finance tradition, Leffler's book heavily emphasized the operational details of trading in securities. That made it just right for my purposes. It turned out that widespread professional disenchantment with the first two "revolutions" would ultimately return finance to square one.

In January 1956 I carried out my nocturnal plan, but to my amazement the experimental market converged "quickly," at least relative to my expectations, to near the predicted equilibrium price and exchange volume, although there were "only" twenty-two buyers and sellers, none of whom had any information on supply and demand except their own private cost or value. I thought perhaps that it was an accident of symmetry in the buyer and seller surpluses. I shot that idea down with an experiment at the beginning of class the following fall using a design in which the seller surplus was much greater than that of the buyers.

Had I somehow stumbled upon an engine for testing ideas inside and outside the prescriptions of traditional economic theory?



More recently, John List at Maryland has replicated the Chamberlin experiments and found them to converge over time to efficient outcomes, and Erik Tallroth has compared double auction (DA) with bilateral exchange (BE), where people choose each

other blind with no feedback of information except on their own sequential contracts. Erik finds that both institutions are efficient in yielding competitive outcomes in a randomly shifting supply-and-demand environment, although price volatility is much lower with the DA. We continue to learn from variations on these elementary early experiments after nearly a half century.



Over the years 1956 to 1960, I created many variations on this original experiment, altering the supply-and-demand environment, examining shifts in the demand or supply, varying the trading rules, and introducing cash rewards. The latter speeded up convergence in supply-and-demand designs where the buyer and seller profits from trade were asymmetrical. I gradually became persuaded that the subjects, without intending to, had revealed to me a basic truth about markets that was completely foreign to the standard literature of economics. I reported my early experiments—crude as they were compared with what I would later learn to do—in a paper, accepted for publication in *The Journal of Political Economy* in 1962. That publication process involved two revisions, four negative referee reports, and an initial rejection. (See my *Papers in Experimental Economics*, Cambridge University Press, 1991, pp. 157-158, for a discussion of that experience.)

During these years most of my research and teaching dealt with capital and investment theory, and corresponding dynamic pricing problems (*Investment and Production*, Harvard University Press, 1961). In 1961-1962 I was a visiting associate professor at Stanford, and at the beginning of the autumn quarter I had the truly significant experience of meeting Sidney Siegel and discovering that we had both been doing “experimental economics.” Unknown to both of us at the time, Reinhard Selten had also been pioneering economics experiments in Germany. Sid—a truly powerful experimental intellect—strongly influenced me in becoming committed to experimental economics, but he died unexpectedly at age forty-five within a few weeks of our meeting. Eventually I read all of his publications, including his classic, *Nonparametric Statistics*, and his

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two books co-authored with L. Fouraker. Sid was far more than a master experimentalist; he also used theory and statistics with skill in the design and analysis of experiments. I am persuaded that if Sid had lived he would not only have been the deserving Nobel Laureate who was well out in front of the rest of us, but also the timetable for the recognition of experimental economics would have been moved up, perhaps several years. It is important to be long-lived if you are to obtain such recognition.



I met Sid Siegel in the autumn of 1961 at a dinner party at Marc Nerlove's house. Marc had a number of guests at his house in celebration of several visitors at Stanford and the Center for Advanced Study in the Behavioral Sciences. Sid was there with his wife, Alberta Siegel, who was connected with the medical school—visiting perhaps—while Sid was at the Center. Jack Hirshleifer was also a visitor at the Center and was in attendance with his wife, Phyllis. Many were there from the Economics Department. I recall that in the course of discussion Sid and I discovered that we were both doing “experimental economics,” although I have no memory of whether we used that term. In fact, I do not recall when the term was first used, although that is what we called the first Ford Foundation Faculty Workshop at Carnegie Tech in the summer of 1963.

We were both very excited to learn that we were each doing experiments in economics. Somehow, at Marc's event, Sid got into talking about his origins and childhood—growing up poor on the streets of New York. His family—father, mother, and one brother—lived in a two-bedroom apartment somewhere in New York City. Because his brother “was a genius who played the violin,” he needed to have every advantage, the best that the family could provide. So his brother slept in the second bedroom, and Sid was relegated to sleeping on the living room

couch. He recounted that he was essentially loose on the streets of New York, got into trouble with the police, and served some time in jail (this I may have learned later). He failed to finish high school (until years later), hung out in pool halls, and supported himself as a pool shark.

A pool shark drifts around from one pool hall to another and plays with newcomers, but always underperforms. He comes off as a fairly skilled but not spectacular player, prone to reckless macho betting beyond his ability to deliver. When a new player challenges him to games, he wins some, loses more, and plays well enough to be a challenge, but not a threat. Pool sharks play for dollars. Sid used to get behind, up the stakes, feigning a need to win back his losses, and then start to play better. Sid would get ahead, lose erratically, and soon the unwary victim would be suckered into some very large bets and then would be slaughtered, with Sid demonstrating cue skill surpassing anything he had shown up to that point.

Sid was inducted into the Army, which “saved him” from a wasted existence. He signed up for the U.S. Army Signal Corps, and he learned the principles of electricity, communication, and its associated physics. After his discharge from the Army, he ended up teaching in the physics laboratory at San Jose State as a lab assistant to one of the professors. His professor commented one day that Sid was exceptionally good and should get a college education. He suggested that Sid apply to Stanford and that he was sure, that with his strong recommendation, Sid would be accepted. Sid noted that this plan had a slight problem: He had never graduated from high school! They found a way for him to get a high school degree by correspondence. Sid entered Stanford at age twenty-eight and completed his B.A. in three years and his Ph.D. in

three more. His book *Nonparametric Statistics*, a classic still in print, was published when he was thirty-five, and Sid died ten very productive years later. What a short, volatile, and distinguished career.

Many years later I attended a small Psychology and Economics conference at Caltech. It was attended by the cognitive psychologists Kahneman and Tversky. In the context of one of the discussions, it was natural for me to ask, "Whatever became of the tradition of Sidney Siegel in psychology?" In reply Amos Tversky quipped, "You're it!" This was intended as a put down, a *touché*. Siegel was seen as part of the Skinner animal behaviorist tradition in psychology, a tradition that approached decision behavior as an objectivist "black box" study of the choices made by animals and people under various controlled experimental conditions. It eschewed the idea of studying decision in humans as part of cognitive processes using introspection, surveys, and subject oral and written reports, which are then interpreted by the scientist in terms of models of cognition. Skinner had rejected this methodology as unreliably subjectivist.

Cognitive psychologists in turn rejected Skinner's behaviorism as devoid of all attempts to understand mental thought processes. This is typical academic maneuvering: They are both right (and wrong). Obviously you use all the instruments at your disposal, recognizing the hazards of subjectivism and the dead-end extreme of the behaviorist's unwillingness to delve into that "black box" called the brain.

For me the quip by Amos was a compliment in the extreme. I am happy to be "it," in the Siegel tradition, and also to embrace the learning from cognitive psychology while recognizing its subjectivist hazards and its many weaknesses in depending heavily on people's conscious cognition. The self-aware mind has little appreciation of the brain's ability to func-

tion effectively outside our control. We now have brain-imaging technologies and neuroscience, which is in the process of burying, while reinterpreting and building upon, both the earlier traditions of psychology. The neuroscientist Mike Gazzaniga says that psychology as we have known it is dead. He is right, but I think much of the earlier learning will survive in a transformed, deeper understanding. I think that is happening even as I write.



Something interesting happened after my leave of absence at Stanford. My experiments had aroused my interest in applications to stock and commodity trading, and the possibilities for shareholders trading via computer. Recall that it was the Leffler book that had helped to fuel my interest in the mechanics of stock trading. I had returned to Purdue, and it was the fall of 1962. My idea was that it was feasible for shareholders, say on the New York Stock Exchange, to trade by submitting bids to buy and offers to sell to a computer in a periodic “call” market for the shares of a listed company. The bids would be ordered from highest to lowest price and the asks from lowest to highest price, and the market cleared of those bids that were above and those that were below the uniform price at which the bid array crossed the offer array. The bid/ask list would look just like the specialist’s book of limit orders shown in Leffler’s textbook, except that the supply-and-demand arrays could overlap. Also, you could shift the two schedules to the right by adding in bids and asks “at market” that did not specify a limit price. It did not occur to me that you might have an electronic double auction in continuous time (that prospect would come in 1975-76 at Arizona with our development of e-commerce in the lab), because in those days our thinking about computers was very much influenced by batch-processing procedures. You loaded data on cards or tapes, fed it into the computer, and waited until it chugged through the data analysis. In my conception, the computer would do the sorting of the bids and asks, and then chug out the price and the list of buys and sells that traded at that price.

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Early in the fall I had occasion to visit the Chicago Board of Trade, where I met some traders. At lunch I mentioned the idea to one of them, and I quickly learned that he and the CBOT were thoroughly allergic to any notion of using computers in commodity trading. The guy really put down any such utility for computers in his business. I did not get the message, nor did I guess that they would not be prepared for that message for another fifteen years. (The Toronto Stock Exchange would become the first to introduce computer trading in 1976. The TSE system, however, would be strictly limited to the list of thinly traded stocks. There was no way that the members were going to relinquish to some computer control over the lucrative, heavily traded stocks that enabled them to collect big execution fees.) Looking back from the perspective of much later experience, I realized that I was probably lucky to get out of the CBOT without being tarred and feathered!

I explained the idea to Em Weiler one day, and he said it sounded like the kind of idea that would interest the Sperry-Rand Corporation. This was the same Sperry Corporation that had built the fire-control system on the B-29, but it had merged with Rand. Then he explained to me that Purdue had an exchange agreement with Sperry-Rand, which had given a supercomputer of the day to Purdue. I knew about the computer because Ed Ames was learning to program it—a tough task, as in those days you had to program directly in machine language. There were no operating higher-level programs like those that came on stream later and are everywhere today. New forms of specialization and the markets necessary to support them have occurred in wave after wave of innovation in that industry. The Sperry-Rand computer was in a large air-conditioned room and was used only by the few specialists on campus who were proficient in machine language.

The exchange agreement was that Purdue faculty could bring ideas to the Sperry-Rand table for discussion. Sperry-Rand was one of the few companies that had extensive experience with real-time computer systems because it was for decades a major contractor for the military. Em thought, and I agreed, that what I was talking about was technologically a natural for them. Working from the computer

business end, rather than the exchange end, with which I had failed to get off the ground, seemed like a better way to go.

I had more education ahead of me.

Em set up a meeting in New York with executive- and board-level personnel, and we met with them the following morning. I had put together a presentation showing in great detail how the mechanism would work. I put up a limit order cross on the blackboard and then shifted them over to accommodate orders “at market.” I also gave some examples of contingent orders—for example, a “stop-loss” order that is converted to a “market” order to sell, contingent on a trade occurring at a stated higher price.

There were questions, and a discussion ensued. One of the executives invited to the meeting was a former NYSE trader. His view was that it was infeasible to get the NYSE to change; it was simply not practical. Also, we were told that the basic position of the company’s management was that there were so many uses of computers out there in the world that Sperry-Rand was well advised to wait until people in a particular industry came to them with a problem they wanted to solve. Then the company would work on it. I was learning. We packed up and flew back to West Lafayette.

I thought of this meeting years later as IBM grew rapidly to dominate the computer business and Sperry-Rand declined. But regarding the question at hand, I have no doubt that Sperry-Rand’s reading of the securities industry was dead right. IBM did not leap ahead by selling computers to the stock exchanges that would be used for trading.

The growth of my research interests in experiment, together with a modest literature by myself, Siegel, Fouraker and Siegel, and by Edwards in choice under uncertainty, by Anatol Rapoport in prisoners’ dilemma games, and miscellaneous others in social psychology who were studying behavior in experimental matrix games, led me to initiate a graduate seminar in experimental economics at Purdue in 1963, which continued until my departure in 1967.

In that first seminar I had thirteen students, including Don Rice, Hugo Sonnenschein, Norm Weldon, and Tom Muench, whose careers I have followed. I published new papers in experimental economics in 1964 (on Bayesian interpretations of experimental methods with

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Don Rice), another in 1964 (comparing two variations on double auction rules), in 1965 (effect of incentive rewards on convergence; tests of the “Walrasian hypothesis”), and 1967 (uniform vs. discriminative pricing in Treasury Bill auctions). From 1963 to 1965, I developed and taught what I came to call the theory of induced valuation and its extension to multiple-unit markets. Induced valuation was simply a technique for using monetary rewards that enabled the experimenter to control the economic environment and motivate choice in the laboratory study of markets and in all other group-decision and management problems. The problem of explaining why I was doing experimental economics, and what it was, had drawn me to an interest in articulating its methodological foundations.



A key component was this idea of inducing value (cost) onto abstract goods in the laboratory. If  $(x, y, z)$  are quantities of three goods (private or public), and we pay subjects  $M(x, y, z)$  dollars cash for their end-of-period holdings  $(x, y, z)$ , the level (indifference) curves of the function  $M$  are those of the standard postulated preference theory, provided only that the utility of money (or another reward medium, such as extra-credit grade points) is strictly increasing in  $M$ . That was the link to standard theory, and the same considerations applied to production and cost functions on the supply side of exchange.



Several working papers by students and faculty were also spawned by this workshop effort. In 1964 and again in 1965, under the enabling and supporting influence of Dick Cyert, Jim March (and probably Herb Simon in the background), Lester Lave (an early contributor to experimental games) and I conducted Ford Foundation faculty summer research workshops at Carnegie Mellon. Since I had several experimental papers in the pipeline and a seminar going, experimental economics was becoming much more than a hobby for me. It had a good solid start by the end of the 1960s and took off in the 1970s when Charlie Plott, people at Caltech, I, and the people at

Arizona started to move in step, but follow different routes. Thus, at Arizona in 1975-76, experiments became computer based. By the 1980s the whole field was on a significant knowledge growth-accumulation path.

The Purdue program in economics was built upon a simple home-grown principle: You keep good faculty by providing them with opportunities for self-fulfilling accomplishment. As they build their careers, this success rubs off on the department and the University, whose reputations are derived from those of the faculty. You build university reputations the way you develop economies—from the bottom up. Em somehow raised the money to keep pay increases ahead of the competition for those he wanted to keep. When the Harvard Business School approached me again after a few years at Purdue, its representatives complained about the salary structure that Em had created. He constantly importuned us to keep him informed on outside expressions of interest in hiring those of us on his faculty, as well as the offers and offers of offers that we got, whether or not we were interested in them, and what our scholarship needs for staying at Purdue were.

All this information was passed on by Em to President Fred Hovde. When Em swung his bat, he was always ahead of the curve. He was a legend, and people everywhere wondered how in hell anyone could build a distinguished economics faculty in the cornfields of northern Indiana. But we built bloody tall mansions in those corn fields. Purdue produced people with newly created knowledge, and it grew them right there between the corn rows.



In 1959-60 I was invited to give a seminar at Chicago. In your first seminar presentation at Chicago, you find out what it must have been like to be a Christian in a Roman lions' den. Apparently I passed muster, since I received an offer. George Stigler was very supportive, but somehow he had gotten the idea that the way to recruit me was to fill me in on some bruising facts. He let me know that while Purdue had done wonders, it could not last. It was not possible in the long run to build a prominent

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economics department outside a major metropolitan area. I should leave Purdue and come to Chicago. I knew in my bones that he was probably right, but I resented being told that in 1960, and it just pissed me off. I was not going to be part of any exodus that fulfilled George's imperious forecasts at that time. I went back to Purdue and conveyed notice of the offer to Em, but I turned it down. We kept Purdue all together in one magnificent piece from 1955 to 1968, left an enduring legacy, and, more important, helped to change a lot of things in this sorry ass world, so I make no apologies for any of us. Purdue gave me an honorary Ph.D. in 1989 and then renamed its lab for me in 2003. For me there could be no greater honors—the first before the Nobel award, the other after.



During the period 1956-57, a group of us at Purdue had a research contract with the Saint Louis and San Francisco Railroad (SLSF). The group included me; Abe Charnes, who left Carnegie Tech to move to Purdue in 1955; and Rubin Saposnik. Abe was looking to develop a train-scheduling routine and perhaps other applications using linear programming. We began with brainstorming sessions in meetings with management. In retrospect, for me, this was a device for enabling us to become familiar with the operations of the railroad, its problems, and the way the minds of the managers worked—and vice versa.

This was all new to me, and it was a great personal learning experience. I did not come to the meetings with a tool, such as linear programming, that I was looking to apply—an answer in search of a question, a solution in search of a problem. I learned that not having a preconceived tool searching for raw material to shape was an advantage. It was more useful to focus on how things worked on the SLSF and then ask what modified rules, policies, and procedures could make them work better. The sessions were of intense interest to me. I soon found myself absorbed in SLSF's numerous management

problems and with discovering how “economic thinking” could help in addressing each problem.

The central problem of the railroads and the decline in their freight business was increasing competition from over-the-road truck trailers. Also of concern to management was the general problem of obtaining more efficient internal operations, an issue that emerged in a series of cases or examples in which human and organizational resources were poorly allocated. There were three key people on the management side with whom I had the most interaction. The vice president of marketing (hereafter VPM, as I do not recall his name), the vice president of operations (“Vic” Gleaves, I believe, but call him VPO), and a bright and intriguing younger man, A. R. “Art” Lindeman, who had been in intelligence operations with the U.S. Army during World War II. Art had a title that I do not remember, but essentially he was a troubleshooter looking for operating inefficiencies that could be corrected.

I will begin with an issue in internal organization, then talk about a solicitor/sales problem, rate making, and piggybacking issues, in that order. I will talk about my thoughts and contributions on each issue or problem at that time. The essence of the various discussions is presented in the form of conversations that approximate the interactions. Some of this thinking was embodied in the final report to the SLSF, never published, which is somewhere among the papers I contributed by request to the Duke University archives.

### *Internal Organization*

A large regulated railroad has a bureaucracy not unlike that of a large state university. The usual profit criteria applying to any business are modified by ICC regulations, and hence the conditions that create a heavy university-like bureaucracy.



A university’s primary mission is research and education, and the delivery of these products to students, professionals, and the larger community.

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Ideally, for each subordinate activity there is the need to ask how that activity contributes to the mission, and whether the activity should be executed via the university's direct investment or delivered by external entities—in business it's called the make-or-buy decision. Such activities include food handling, custodial services, maintenance of a fleet of automobiles, hotel facilities, bookstores, bowling alleys, pool halls, the capacity to renovate and remodel offices and classrooms using plumbers, electricians, carpenters, painters, and so on. The question is to what extent, given its mission, a university should also develop, in-house, the expertise to develop and manage all these subordinate activities. Exactly the same issues arose in the regulated railroad.



The SLSF's operations center was in Springfield, Missouri. Its main tracks formed a cross: one track from Kansas City to Birmingham and the other from St. Louis to Dallas, with the two crossing in Springfield.

Art was in a small town in southeast Kansas, with an SLSF train depot, doing his job: looking around and asking questions of the depot manager. "What is in this warehouse?" Reply, "Furniture." "Let's open it and have a look." Inside, Art found heaps of dusty junk furniture, broken and in disrepair. "Why are you keeping it?" Reply, "Eventually it will be sent to Springfield for repair in the SLSF furniture repair facility, but they have a backlog." "And you need it?" Reply, "No, but one of the other departments in the railroad might." So Art said, "You got a couple of day laborers available?" Reply, "Yes." "Send them to me." When they showed up Art told them to move all the junk in that storehouse out on the open railroad siding area. When they were finished, Art poured gasoline over it and set it afire.

Furniture policy here is a classic make-or-buy decision. Should all the furniture storage and repair facilities be shut down, the assets put to work elsewhere in the company, and furniture purchases and maintenance contracted out to other parties? I emphasized the principle

that every policy or activity needs to be tested against one or more alternatives to determine whether to institute a change. This was not a natural way for management to think about its task, although Art clearly understood it and was trying to reduce inefficient furniture inputs to an inefficient repair facility. I found it amazing to learn that a large, regulated railroad, facing intense competition and a decline in its transportation business, was also perpetuating an internal furniture-repair business.

### *The Solicitor/Sales Problem*

Art also reported that he had been investigating commodity-handling operations and had found that the sales force was soliciting uneconomical business that cost more to handle than it was worth. He had several examples, but here is one of the most glaring. A salesman had solicited the movement of some huge steel I-beams that were too long to put on a single flatcar. You had to string the beam across two flatcars. The flatcars would jiggle up and down, rarely in unison, as they sequentially negotiated bumps and unaligned rails in the roadbed. This stressed the beam and escalated flatcar maintenance and repair. Art investigated it and noted that the salespeople were judged on the basis of tonnage solicited. From their perspective this solicitation was a coup, and they were giving away whiskey to get the business!

I proposed the following solution to the solicitors' incentive problem: Take every item published in the railroad's rate book, and estimate the out-of-pocket cost of handling that item from pickup to delivery, including any unique equipment needs or costs and maintenance arising from the special handling. For every quoted rate, the salesman is given this associated out-of-pocket cost. The difference between the load's revenue and this cost is the contribution to overhead (CTO) of a unit of that business. Put every salesman on a commission incentive, stated as a percentage of CTO. Any free whiskey comes out of the salesman's pocket.

The proposal had a mixed reception. The VPM and Art were very favorable, but the VPO, a longtime railroad man, said, "I don't think

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we can do it. We are a common carrier, and if we publish an approved rate on anything, we cannot refuse to accept some of the business offered.” Hmmm. Some thought, however, that there was nothing to prevent salesmen from dragging their feet on the low CTO stuff and expediting the high CTO business. After all, there are always equipment availability problems, especially for I-beams that cross two flatcars! I liked this comment, as it was a fresh new example of the emerging Vernon Smith theorem: Every bureaucratic question has a bureaucratic answer.

It turned out that in railroad rate making there indeed was a significant regulatory issue. Any time a railroad filed new rates, any shipper or competitor could challenge that rate. Furthermore—and this tells you how pernicious such regulations can be—a test that was to be applied was the following: *Does the new rate divert traffic from competitors to the railroad?* Give me a break, I argued. Why would you want to change the rate if you did not hope to divert traffic, or at least prevent diversion away from the railroad? How had the truckers been making inroads if not by diverting traffic away from the railroads? Apparently, it was possible for the lawyers to argue that the truckers were getting the business by providing faster service, not by charging lower prices. But the faster service had a lower price equivalent, which is the counter argument that should have been used by the SLSF lawyers. What mattered was the net price to customers, and that should have been the focal point of competition. Ultimately, this thoroughly constructivist and adversarial hearing process was relieved by the eventual deregulation of the trucks and railroads, early in the last quarter of the twentieth century, but in the 1950s it was all in full destructive swing.

The discussion with SLSF rested with that interchange, and there was no final resolution. We did, however, turn to the question of the commodities that were transported by SLSF. We looked at some manifests, and two things struck me. (1) Many of the items were low-value, bulky agricultural products such as beans and potatoes. I pointed out that these were likely “inferior goods,” defined as those whose consumption declines as individual incomes rise. That turned out to be an eye-opener for management. The VPO thought of those items as growing with population, with no offsetting decline

in per capita consumption. (2) The railroad was hauling commodities that were growing slowly, or even declining, and the growth of a transportation company is obviously just a weighted average of the growth rates of the industries whose products it hauls. The implication was that one should look at the growth rates of what truckers are hauling, and I was ready to bet they were heavy into hauling new, high-growth industry stuff. That led to an immediate policy change. SLSF put its marketing staff to work on researching growth rates by industry to earmark high-growth industries on which to focus its solicitation effort.

### *Rate making*

As background to the discussion, recall that the overarching problem was railroad business decline brought on by increasing competition from over-the-road truck trailers. Not only were the trucks taking shipment volume away from the rails, but they were also taking the high-value commodities for which the transportation rates were highest. Truckers were able to provide faster service, reducing inventories in transit, with inventory cost savings particularly of benefit to the shippers of high valued goods.

So, I asked, how were rates made?

The ensuing discussion of rate making noted that besides variable and commodity-specific handling costs, much of rate making was concerned with how to allocate fixed costs. Of course, the essence of fixed costs is that they *cannot* be allocated, and I said so at one of the meetings. Inventing arbitrary ways to allocate non-allocable fixed costs was, however, the regulatory ICC approach to ratemaking. But economically how should the rates be determined? I proposed a simple procedure. Don't begin by looking at your own costs, and certainly not at your fixed costs. That is the wrong end of the telescope. Start by looking at the commodity rates charged by the truckers (or other competing alternatives). You price based on the competition with allowances for speed of delivery and other service elements. Thus, if SLSF is slower, offer a lower price, but also look into more express trains and other expedited movements for certain

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commodity groups. Does the additional cost of express trains enable higher prices to compete with the truckers? Given a price that is competitive, look at assignable out-of-pocket costs and determine whether the business makes a net contribution to overhead. If not, let that business go to the truckers; otherwise, go for it yourself.

### *Piggybacking*

By the 1950s a technology had been developed for easily shipping semi trailers on railroad flatcars. A truck tractor picks up the loaded trailer from a shipper, moves it to the nearest rail terminal, and sets the trailer onto a flatcar. At the destination rail terminal the trailer is picked up by a local truck tractor that delivers the trailer to the final customer. The railroad provides the long-distance movement of the shipment at low cost, and truck tractors are used for flexible, low-cost local pickup and delivery on each end. The best of both transportation modes are combined. The flatcar movement of a trailer is called piggybacking. If a trailer goes shipboard, as later it did, it is called fishybacking.

In 1956-57 individual railroads were considering whether to use the new piggybacking mode of transportation. The VPO took the position that if SLSF did enter, it would help the truckers who were already snapping up railroad business. Why should it help them? I argued that there were gains from trade using the new mode that would be shared by both entities, and it all boiled down to the terms on which SLSF provided long-haul service for the truckers. The gross gain for SLSF was in the price at which it moved the shipment. It could be a means of recovering lost business.

But there was a wrinkle that put the SLSF in a unique position relative to most railroads; it had a wholly owned trucking subsidiary, fully authorized by the ICC, as a common-carrier trucker. SLSF was using this subsidiary for substitute service to enable it to abandon unprofitable rail service in more remote areas, but it also enabled it to compete with truckers on regular road routes. It could expand the truck subsidiary in the SLSF operating territory and solicit business in competition with other truckers, but piggyback the trailers

point-to-point at lower cost. Of course, that was a good strategy, but I argued that it did not preclude offering point-to-point piggyback rates to all common-carrier truckers, provided that the SLSF could obtain a favorable rate for such movements.

The above was pretty much the gist of our final report delivered in August 1957. We bid each other goodbye after our last meeting, and I returned to my hotel room for later departure on a return flight to Los Angeles. It had been a demanding month: Mom's suicide, home to Wichita for the arrangements, the funeral, then to St. Louis for these business meetings. I was relieved and thought it was all over, but it wasn't quite over. The hotel phone rang and it was the vice president of marketing, who wanted to talk with me if I had time to come over to his office. I had time and I walked over. He got right to the point, saying, "I want to hire you to be in charge of rate making at the Frisco." I replied, "But I have no experience or knowledge of making railroad rates." He said, "Yes, I know, and that is precisely why I want to hire you. What rate making needs on this damn railroad is someone who thinks like you, not someone who knows all about the regulated world of rate making."

I was not ready to leave Purdue in 1957, but I have sometimes wondered what direction Joyce and I would have taken if we had pulled up stakes and left for St. Louis. I would have followed my maternal side of the family and become a railroad man! And likewise for Joyce, whose father was a Whitewater, Kansas, telegrapher on the Rock Island and Pacific Rail Road (as I have indicated, another ambitiously named railroad that never came close to making it to the Pacific). In the moment it was tempting, exciting, and challenging. Soberly, at that time I thought my comparative advantage was in academia, where I had an unfinished agenda, not in the railroad business. But I felt unusually honored by the VPM. I had the personal feeling that I had brought value to the railroad and that I was leaving satisfied customers behind in St. Louis. The VPM confirmed this perception. I felt really good about St. Louis. The month had brought trials, but there had been successes in the midst of failures that had been inevitable. It was now all history; you cannot change it; but it can change you, and in a small way it probably did change me.

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In 1964 I bought a new International Harvester Scout 80 from the IH dealer in Lafayette for \$2750. Before I sold it in July 2006 on eBay (for \$5800, with an odometer reading over 100,000 miles), we still fired it up for trips down to Starbucks and other local hangouts, sometimes including the Maverick or some other country-western music hall. (As the fella said, “There’s just two kinds of music: country and western.”) It had been retired for many years from active four-wheel driving on back-country trails requiring all-wheel drive. The steel top had long ago been unbolted and discarded, a bikini canvas top installed, the exterior freshly painted, and chromium wheels and bumpers installed. It became a drug-store, rhinestone four-wheeler, but it still carried many dents underneath in the steel “skid plate” installed to protect all the underside cables, springs, transmission, transfer case, and so on. The vehicle weighed over 4,800 pounds with all the protective armor and before I discarded the steel top.

In 1964 Joyce, Eric, Deborah, Torrie, two dogs, and I drove it to Utah, pulling a thirteen-foot travel trailer for upscale camping, complete with dining-room table and propane stove, upper and lower bunks, and a side bunk, sleeping five people in all. We explored southeast Utah and liked Monticello, near the Four Corners border. We settled into Buckboard Flat, a campground, straight up the mountain road from town, where we unhooked the trailer for living, the Scout for four-wheeling, and turned out the dogs—King, the accomplished hunter of uncertain lineage; and Tanya, the AKC-registered Alaskan malamute. We left the dogs and trailer, drove down the mountain to the highway, and turned left toward Moab. This is a beautiful drive. I am talking about a scenic mix of semi-desert, mountains, and the country of “standing up rocks.” About halfway to Moab we passed the entrance to Canyonlands on the left, at the Church Rock turn—it’s impossible to miss a massive rock formation that looks like a church. We are well armed with BLM topography maps covering the whole area, and the region is loaded with crisscrossing four-wheel trails that we are hell bent to explore: Salt Creek, Elephant Hill, the Staircase, Chesler Park, SOB Hill, Bobby’s Hole, and so on, with switchbacks so tight you have to back up the next one rather than try to make a turn so close to the edge.

The first landmark you pass is Six Shooter peak on the left. If you saw the movie *Thelma and Louise*, you watched the heroines drive past it in their attempted escape from the Utah State Police. Just past the peaks there is a four-wheeler trail to the right, but for its first few miles two-wheel drive is all the traction you need. That is how Thelma and Louise were able to get to the high, flat meadow on the north bank of the Colorado River, downstream from Moab and just upstream from the Colorado's confluence with the Green River, where all hell breaks loose as the river cascades through Cataract Canyon. Joyce and I have been on Thelma and Louise's back trail all the way to Moab, and it is the worst we have ever negotiated. But they drove only a short distance, because they had a convertible, and you do not have to drive far to get to their setup for a grand leap off the edge into the Colorado River, way, way below.

Back in 1964, at our Canyonlands off-road initiation, we drove to the next landmark, a trail on the left up the middle of Salt Creek. This was before the Canyonlands National Park and recreation area existed. It was BLM country, and near Salt Creek was a BLM mobile home, set amidst a few trees of precious shade and occupied by a very pleasant retired builder and his wife from the East Coast. The BLM set him up there as an imaginary gatekeeper at the entrance to all these trails. His job was to give advice, and we filed our four-wheel exploration plan with him. That way he knew when to expect us, and if we did not show up at the expected time, he would look for us. It's easy to get stranded in there, there is no food or water, and there is precious little shade except under the high rock ledges. He was sitting in most of what shade there was.

"So what's your plan?" he asked, and I replied, "We would like to drive in by Chesler Park to Bobby's Hole and up the Hole to the back side of Mt. Abajo, and return to Buckboard Flat." He said, "Nobody can get up Bobby's Hole; it's too steep, and you have to negotiate rocks that are close to the boulder category. A winch does not help, as there is nothing to hook the winch to. But you can creep down it if you've a mind to." So I said, "OK, then today we will go up Salt Creek for a shorter jaunt, get some practice, and return to our campground this evening. Tomorrow morning we will start early, go up and over the saddle here on the topog map, find the

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trail to Bobby's Hole, and drive down it. How long will that take?" He estimated we would be back where we then stood by about 3:00 p.m. if we started at 7:00 a.m. So we went up Salt Creek, and the Scout did its thing masterfully. We got up as far as Angel Arch, a great closed arch of sandstone that does indeed look like an angel with head bowed playing a great harp, with the imaginary strings in abstract representation. Years later I read in a Park Service brochure that Angel Arch was not discovered until the 1940s. Bullshit: As will be related below, it was the BLM and Park Service bureaucrats that did not discover it until then; it was long known by the Mormon cowboys who *decades earlier* had run cattle on Chesler Park grass.

The next day we managed to get down Bobby's Hole, creeping slowly and negotiating small-scale boulders. In one long morning the Scout picked up half its lifetime supply of protective armor-plate dents. If you want to do Utah, you never buy an RV without a full skid plate to protect engine, transmission, transfer case, and front and rear differential gears. We stopped at Chesler Park, a huge ring of towering standing rocks. Inside is a meadow of grassland in soil deep enough to hold moisture. It is a natural canyon-walled cattle range. Then up SOB Hill, many stops, and finally, running a little late, we encountered the BLM ranger in his jeep coming in to find us. It's the Fourth of July, 1964. There is one other party that we passed on the trail in a jeep. We were told that the entire BLM Canyon Land area contained only the two vehicles. We had maybe several hundred thousand acres all to ourselves on that great day out of a past that cannot ever be rerun except in memory. Somewhere I have slides, many of them washed out by the intense sunlight. No wonder I have had three skin surgeries in the last four years!

But you can live it vicariously: Start by renting and enjoying the movie *Thelma and Louise*, then get a paperback copy of *The Monkey Wrench Gang* and follow Hayduke's jeep chases all over Canyonlands, from the Maze to Salt Creek, and you will be on all those great trails, originally blazed by Mormons, on which Joyce and I jeeped, sometimes with the kids but never the dogs, who were back in the cool shade, the streams, and among the small game of Buckboard Flat. You have to learn Hayduke's measure of driving distance: As I recall, Tucson to Flagstaff took a six pack and half to drive. Have fun.

The Scout had one problem: On a very steep upgrade the engine started to cough and choke, and we had to slip the clutch to maintain steady power. When we returned to Lafayette, I drove to the dealership and reported my problem. A mechanic checked out the engine and found nothing wrong. I figured it was a design defect and any Scout would do it, but the dealer denied that could be the case because IH had a proving test ground in Arizona and everything was thoroughly tested to keep such defects from surviving. More BS, but it could be challenged.

Of course, no tests are that good. The local guy was just making up the facts to protect its beliefs. It's like the people who believed the world was flat: The ships that went out and never returned were said to have fallen off the edge; the ships that returned were said to have never gone far enough.

I got the name of the IH President from the Standard and Poor Corporate records at the Purdue Library, vaulted over all the dedicated employees making up the facts, and wrote him a letter explaining my problem. He answered, thanking me profusely for the information, and said the regional division head from engineering would be in touch with me as he would want to hear all about any defects. Clearly, top management was in the business of selling Scouts, and you cannot do that without satisfied customers out there good-mouthing you. Soon I got a call, and we set up an appointment with him to meet at the local IH dealer.

After some discussion, I said that I could demonstrate the problem if I could get on a steep-enough incline. The dealership had a flatbed truck with a hydraulic adjustable bed that could be tilted into an incline, and the dealer manager asked if that would work. "Yes." Watching me, he tilted it until I indicated that it was poised at a steep enough angle, about 35 degrees, take or leave a degree. He got in the Scout with me and I began the ascent. Then he said, "Wait, I think I will get out and watch you!" So I stopped. He bailed out, and I resumed. As all four wheels reached the bed, and I started up, the engine started to cut out, with black smoke coming out of the exhaust—black smoke indicates that the fuel mixture is too rich. The fuel-to-air ratio of gas vapor coming into the cylinders was too high for complete fuel combustion.

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The regional division head said that I would be hearing from the Holly Carburetor representative at the IH plant in Ft. Wayne. In fact, a man identifying himself as representing Holly called me shortly afterwards, made an appointment, and came down to see me and the Scout in Lafayette. He said he knew about the problem, that any Scout off the assembly line would do it, and he showed me why. With the hood up, he pointed out that the gas line comes into the rear of the carburetor. On a steep incline, the gasoline in the carburetor bowl is tilted backward, the float, which is hinged at the rear of the bowl, drops down, the valve for controlling the inflow of gasoline into the bowl opens, and the bowl is flooded. He said that Holly had been trying to get IH to buy into a new carburetor with a spring-loaded needle valve and gas line coming in from the side, but IH had balked as it would add \$50 to the price of the Scout. So he and I had coincident interests, and from there it was all downhill. He would fix my Scout and he thought the customer complaint meant that IH would be convinced they should change carburetors.



In fact, IH was so convinced, and beginning sometime afterward, all Scouts had the new design. In 1972 I bought a second new Scout, keeping the old one because I could not bear to give it up, especially since I had the only one known to me that did not have the carburetor flooding problem. The first thing I did in the display room was to lift the hood on the 1972 model and check the carburetor intake line—it was attached to the side of the bowl. I ordered the new Scout, from a Massachusetts dealer where we were living at the time, for pickup that June at the Fort Wayne plant where it would be built. We would be driving to the house we had purchased in Monticello, and I would be let off in Fort Wayne to bring the new Scout.



His idea for fixing my 1964 Scout was to build an adapter kit for increasing the tension on the float device, and making some other

modifications. When it was ready, I would drive to Fort Wayne, Indiana, he would install it, and we could drive to a local gravel pit for testing. He said that if it did not work he could always just turn the carburetor around 180 degrees, which would solve the problem except where you might have to go up a wall in reverse. He made the device and installed it, but it failed my test in a Fort Wayne gravel pit.

I stayed over that night in a motel. (Here is a sidelight on life in the truck manufacturing region of the city: Upon retiring someone calls me from the desk. Would I like female company sent to my room? “No thank you.” “You are welcome, sir. Have a nice sleep.”) The next day the carburetor was turned around and passed the test in forward drive, doing its hiccupping only in reverse, and I drove back to West Lafayette quite satisfied. Until 2006 I owned the only 1964 Scout that can climb anything forward. This means that it encounters a problem on only two trails known to me: One of the switchbacks on Black Bear trail above Telluride—at 13,000 feet, as you ascend just below the waterfalls—has to be negotiated in reverse; and there is a similar switchback on Elephant Hill in Canyonlands. My 1972 Scout could handle either one, but it had a longer wheelbase than the 1964 Scout 80, so it would have dragged its tail on the rocks if I had tried to come down Bobby’s Hole.

The lesson here is simple: Don’t listen to the stories you hear from the local dealer. Contact the company at a high level. All the companies known to me want satisfied customers—if you find one that does not, consider selling its shares short—and the top management wants to know of any problems that its information channels may protect them from hearing about. Lower-level managers are sometimes reluctant to tell their bosses anything but good news, so the president is the last to learn of a problem that needs attention. It’s much like a university. In fact, customer-oriented companies now have hotlines for this purpose, so you can bypass the local franchised dealer whose incentives may not be completely coincident with those of the manufacturer. In fact, this disconnect in incentives explains why hotlines exist now, and illustrates how institutions adapt over time if people are alert to the needs for change.



## Chapter 11

# The People

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Em always was in a position to see it differently from the rest of us. He was the quarterback, and we were the ones carrying the ball and doing the blocking and tackling. . . . None of us saw it the same way, obviously. We each mainly saw the others through the dust of our own work.

—John Hughes

Joy is greatest in those moments in which man is aware that his individuality and creative energy are at their highest pitch.

—W. von Humbolt, *The Limits of State Action*

During that early period, 1955-57, many of us at Purdue discovered that we shared a common dissatisfaction with substantial portions of our own graduate educations. Our dissatisfaction led to an emergent commitment to create a graduate program that would reflect our own aspirations for new experience and to teach from that experience. The program was designed around the faculty. We didn't recruit to fields of economics, with the program structured and predefined by the fields. That was, and is still, what is wrong with economics and economic education, and it is why even new stuff is so much like carbon copies of the old. Breaking the mold for over a decade is what made Purdue work and why it will not readily be replicated elsewhere. We recruited people we thought were promising and were doing innovative work. The program was then defined by what these young faculty additions wanted to accomplish professionally. What we taught grew out of our own professional problem solving: Stan Reiter in mathematical economics; Ed Ames in quantitative methods; and Lance Davis, John Hughes, and Nate

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Rosenberg in economic history were the three principal “fields,” or legs of the program, and within this framework I would later develop experimental economics, but up into the 1960s I was doing my brand of quantitative methods in the form of what the graduate students would come to call enginomics. We did monetary economics because we had George Horwich and that was his research. We needed applied economics, but we got that with economic history and experimental economics. The economic historians did monetary economics, macro, labor economics, international trade, growth, and specialties such as innovation and technological change. So why recruit an international trade economist, a macro economist, a labor economist, and so on? Just recruit a stable of economic historians like Lance Davis, John Hughes, and Nate Rosenberg who knew those topics and had an integrative perspective.

In 1957-58 we had a handful of inherited graduate students at Purdue, but not enough to have a program. We proceeded to build it through a direct recruitment effort by members of the faculty, particularly Ed Ames and John Hughes, who visited various New York and other universities. This is how we jump-started the Ph.D. program, and over the years we recruited Hugo Sonnenschein, Tom Muench, Nancy Schwartz, John Ledyard, John Wood, Mort Kamien, Gene Silberberg, Pat Henderschott, and many more. Since the students we already had were weak in mathematics, we were teaching a remedial course in math economics, and we emphasized the recruitment of students who were math majors or minors. If they looked good, and seemed to be motivated, we did not care if their grades were not high, and some were indeed not high—Hugo, Mort, and John Ledyard could not have gotten into most graduate programs, any more than I could have gotten into Caltech based on my high school record and courses. They represented the kinds of risks we ran that paid off. All have had outstanding careers. Mort went to Carnegie and Northwestern and has been both a productive scholar and a dedicated, thoughtful teacher. Tom and Hugo, both Stan Reiter’s students, became mathematical economists par excellence. Hugo made important contributions to general equilibrium theory, became a rising administration star, and then became president of the University of Chicago. Tom Muench was teaching a

math econ course at Wabash College while a graduate student, and John Ledyard showed up in his class—his best student, although he had dropped out of Chicago as an undergraduate. Tom told him to apply to the Purdue graduate program, which he did. Tom told us to just ignore his record and take him, which we did. So John was one of our star graduate students, received his Purdue Ph.D., went to Northwestern and Caltech, made path breaking contributions all over the place, and was division head at Caltech—the latter a crazy aberration, but you have to be forgiving of the few mistakes your best students make.

Two students who were in my first experimental economics course had come out of the MS in management program: Don Rice and Norm Weldon. As students using the case method, their favorite sport was busting open the punch line of the case in the first fifteen minutes of class. So the professor would be standing there with an hour to go, and the Socratic discovery process of learning the lessons from the case was displayed right at the start.

But they had a very serious side, a practical down-to-earth side, and from the beginning we all knew that these two guys were destined to run organizations. Don had been in the ROTC program and upon finishing his degrees was required to do service in the military. We got him accepted into a position at the U.S. Department of Defense when MacNamara was the secretary. He became a valuable member of that strategy team—the “whiz kids” with Alan Entoven and others—and after the Johnson years went to the Rand Corporation as president. Subsequently, he served as secretary of the Air Force, and then returned to the private high-technology business sector.

Norm went with the CTS Corporation (Chicago Telephone Supply, but it had become a leading electronics component manufacturer and had long abandoned its telephone roots as the world rapidly changed) as head of research in its newly opened research facility in the Purdue Industrial Park in West Lafayette on Yeager Road, which then was out in the country, across the road from where Joyce and I had built our first house. CTS manufactured electronic components, a brutally competitive business in which you signed major supply contracts for innovative new products with companies like IBM at prices below the unit cost at which you could currently

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produce the item. The research task was to engineer techniques enabling you to lower the unit cost and glide into profitability while the contract had some distance to go. Norm was made for this sort of challenge. He met it, rose in the ranks, and became president of the company. He took the company into medical technology, subsequently moved to other companies, and today is a venture capitalist in funding new medical technologies.

As chairman of the Economic Policy Committee, Ed was a key person behind all the younger people we hired in economics. Ed interviewed all the candidates at the AER meetings, had a great eye for talent, and was unimpressed by the usual credentials approach to hiring. None of us believed in the credentials approach, so we gave Ed a long leash on which to operate and to make mistakes. He never made any. That is how we got Charlie Plott.

Ed described to the committee all the top interviewed candidates that year. When asked whom he thought was best, he said it was Charlie. Yet on paper Charlie did not look like anyone who would be a natural fit with the Purdue crowd. Ed explained that he did not think Charlie was well trained for doing contemporary research—not much math, quantitative methods, or theory—but he had an inquisitive, creative mind and common sense, and he was likely to do important original work, not potboiler stuff. We decided to move on him, and Ed made him a good offer, but he also informed Charlie that he was uneducated, untrained, and had to make up for it, and he told him how to do that. Charlie learned mathematical economics the way Lamont Marsh had learned the machinist's trade. He made his way into a summer program teaching mathematics. If you gotta teach it, you gotta learn it. Just stay a day ahead of the class! That is how I learned economic history at the University of Kansas, except that I took the course one year and taught it the next. Charlie was easily one of the best young faculty members we ever hired, and contrary to Ed's initial opinion in fact had a great background under Jim Buchanan that slowly revealed itself.

I can't leave the subject of my Purdue years without talking about the friendships that were forged in the twelve years, 1955 to 1967 that I lived in West Lafayette.

First I must mention Kirby Davidson and Jay Wiley. The three of us wrote a textbook, *Economics: An Analytical Approach*, (1958, rev. 1962). It was designed and written around our teaching of Purdue undergraduates in engineering and science, made use of the tools of mathematics that were part of these students' studies, and contained lots of applications, particularly of the theory of production—economic examples. At the time this was a fun course to develop and to write about in a real-time textbook, as it was being taught day to day. Jay was already at Purdue when I came, and was a mainstay over the years in helping to build the department and advising graduate students. Kirby was one of our bright new faculty hires who, along with Lance Davis and John Carlson, had completed Ph.D. work at Johns Hopkins. John is still very active at Purdue. Lance ended up at Caltech continuing the development of his reputation as a really distinguished economic historian. I've lost track of Kirby, who left Purdue to work for the Rockefeller Foundation.

The dedication written for that textbook said something about our perception of the Purdue environment:

This book is respectfully dedicated to all the members of the Departments of Economics and Industrial Management of Purdue University and to the continued growth and professional attainment of the community of friendly scholars which they represent and of which the authors are privileged to be a part.

There was Floyd Gillis, an older new Ph.D. faculty member who had been a classmate of mine at Harvard. Floyd and I wrote a paper together, "An Economic Analysis of Contributions Under the Income Tax Laws," published in the *Journal of Political Economy* in October 1958. Floyd's original training had been in accounting, but he had decided to go into economics and ended up at Harvard.

One day he pointed out to me that there was a loophole in the income tax laws as they applied to the firm. Gifts in kind to a charity were deductible from income for determining taxable income. But there was no adjustment applied to the normal deductibility of the cost of goods sold. Items given to a qualified charity could therefore be

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deducted twice: You could deduct the full cost of producing them, but you could also deduct them at fair market value—defined as the price you could get in your most favorable market at the time of the gift. Hence, depending on the marginal cost of producing the item, your income tax bracket, and taxable income, you could determine at the end of your tax year how many items to give away that would maximize your after-tax income. Depending upon the indicated parameters, you could actually improve your bottom line by giving some of your product away. Of course, it might not pay if the gift displaced sales in your own market. Therefore the gift would have to be to a non-competing market—for example, a foreign market in which the firm did not sell goods. Give some of your shoe output to the people in Belgium where you sell no shoes.

I wrote out the mathematical equations and derived the maximizing solution, and we came up with what the engineers would call a nomograph that enabled a firm, with a given set of parameters, to read off the total dollar value of goods to give away. It was correct, practical, great fun, and the JPE (*Journal of Political Economy*) loved it! It had a useful message for all private companies and simultaneously a message for public policy. I don't know how many firms might have used it, but a few years later we noted that the Treasury modified the law. The modification required the taxpayer to adjust "cost of goods sold" for gifts in kind, thus eliminating the double deduction and the main force of the anomaly.

Floyd had a great maxim, which is sometimes worth quoting in reference to standard economic theories: "If a frog had wings, he wouldn't bump his butt so much." Floyd had emphysema from heavy smoking (4.5 packs a day). He also drank heavily, but you would never know it, so well did he "hold it," as they say—famous last words. His physician said he had to cut back to only one drink per day. So, Floyd bought a double old-fashioned glass, and every evening made himself one and only one martini in that glass. He was hospitalized twice with pneumonia. After the first or second time he told me that one night in the hospital bed he had a strong feeling that he was dying. So he said, "I got up out of bed and was able to stand by leaning against the wall: People don't die standing up!"

Shortly after I left Purdue Floyd died of pneumonia. So it wasn't like George Burns, who, at age ninety, was told by his doctor that he had to quit smoking cigars. A friend asked, "What did your doctor say when you didn't quit?" Burns said, "I don't know—he died."

Ed Ames, who had "three proper degrees from Harvard," as John Hughes loved to put it, and Stan Reiter, who had a Ph.D. from Chicago, had arrived in West Lafayette the year before I got there in 1955. John, a Rhodes Scholar and D.Phil. from Oxford, came the year after I arrived. Ed became a legend in everything he did: the classroom, his research, and as an administrator. He knew the Russian language and had full credentials as a Russian economic specialist but did not really pursue that track at Purdue. Early on, when we were developing a school of management and hiring people in accounting, finance, marketing, etc., we elected *not* to form departments. Instead, each area had a faculty policy committee with a chairman—composed of members in and outside of the committee's field—reporting directly to the dean. It worked well, and in the 1960s it served as a cross-disciplinary integrating form of structure. That integration is what produced Ph.D.s such as Don Rice and Norm Weldon, who came to Purdue for the M.S. in Management, but pursued Ph.D.s in economics and business and had great careers in business management.

Ed also took the initiative as Economic Policy Committee Chairman to reform the undergraduate program. The department had been a small teaching department serving the engineering and other technical programs with introductory economics and business classes. The program for majors was not strong. Ed noted that any Midwestern university with 25,000 students had to have scattered through it plenty of first-rate students. So he said, "We will start an Honors program in economics, taught by our best people, and find those best students. We will guarantee that any undergraduate at Purdue who wants an education in economics will get one; for all the others, we will run a hotel, and they will get degrees if they pass minimum standards." And that is what we did. Some of those students in the hotel saw what was going on, checked out of the hotel, and joined us in the honors program.



Ed had unusual skills, not only professional, but also neurological. While writing a longhand sentence with one hand, he could write its mirror image with the other. Later I discovered others who had this aberrant ability. Two decades later I was sitting in Tucson's Bar M Cattle Company one Friday night as the country-western band was getting ready to play. I was talking with my chemist friend Judy Hooper—a remarkable intuitive biochemical scientist. I was talking about Purdue and its bizarre faculty, and to give it a down-home twist, I related Ed's ambidextrous feat. Judy replied, "Oh, I can do that." With her right hand (I think she is right handed) she wrote on a napkin, "I write like Leonardo" (De Vinci had the same ability). With her left hand she wrote its mirror image. Then she asked if Ed could do it either way. "What do you mean?" Whereupon Judy wrote, "I write like Leonardo," from left to right with her left hand and simultaneously its mirror image with her right. Hmm. I didn't know whether Ed could do it, or whether he ever tried. Later I was at a banquet in New South Wales, Australia, making conversation with a lady next to me, and I related the Ed Ames story. She said, "Oh, I can do that," and proceeded to demonstrate. So I said that I had discovered that a friend, Judy Hooper, could do it, and moreover, she could write forward with either of her hands and the mirror image with the other. The lady said, "Well, you know, I never tried it." Going back to the two sheets of paper, she tried, and yes, she could do it either way. I will never know if Ed was locked into the more limited skill, but he sure was a hell of a good economist and a wonderful colleague who could think outside the box with the best of the few who had that skill.



Before Charlie arrived, I had already checked out all the local bass streams from the Tippecanoe River to the Wea, Flint, Deer, and Sugar Creeks. Charlie was a dedicated fisherman and soon learned to like the challenge of smallmouth bass in northern Indiana streams. As Stan Reiter used to put it, “Indiana streams are filled with smallmouth bass and largemouth fishermen.” Charlie and I discovered that there was a certain time of year in early spring when big carp would hit Mepp Spinners. So why not, the bass were not hitting yet? We rarely landed them because they were big and heavy with soft mouths, and the hook would easily tear through when we were trying to land them. Slightly later in the spring, we would get into channel catfish hitting daredevil spoons—anything challenging on gamy light lines before the bass started up. But there were few thrills like a strike by a two-pound smallmouth bass. Those bass did magnificent tail stands, arching up like lightning and shaking their heads at the top of the stand, two or more feet out of the water, and often hurled the lure back at our feet if we failed to keep a tight line.

I had a twelve-foot flat-bottom aluminum Jon boat like the one in the *Pogo* comic strip. Bow and stern were both square cut. It drew about two inches of water and was great for floating streams with volatile depths varying from two inches flowing across a gravel bed to deep running channels and breakout pools and eddies. Charlie and I often floated the Tippecanoe River, and one day we learned how it might have received its name.

Charlie and I were in opposite ends of the boat, with our fishing gear in the middle. Charlie is substantially heavier than I am, so the boat sat in the water like a teeter-totter that was not level. Neither of us was maneuvering the oars, because we just let that boat bang around exposed rocks and stumps and through rapids while we concentrated on fishing. We were casting away when we came to a little drop of three or four inches—nothing, just a very tiny waterfall. My end went over first, and I was in a long cast downstream. Behind came Charlie’s end. It dropped down deeper than my end did because my end was riding higher—thanks to Charlie’s end’s drawing more water than my end. He dropped down, my end went up, and the boat hung there in the eddy just long enough to start filling with water

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from the short falls. That action brought my end up still higher and slowed further the boat's downstream motion while increasing the fill rate. In no time his end took a lot of water over the low sides of the Jon boat. We capsized, fish, tackle, rods, hats, lunch, and spare rods all going under, and the stream was a few feet deep. We hung on to our rods, the oars, and the boat and went to shore. Charlie lost his glasses. We recovered some of our gear, but not all of it.

We learned a little physics; it was obvious once we thought of it. We should have positioned the boat so that he went first. Then my end, riding higher, would have slipped over the little falls and not been low enough to draw water.

There is not a lot to say about Stan Reiter, except that in my view he was our leading economist: untraditional, a first rate theorist, outstanding in applications done as a consultant, with little of it published. Stan taught the best general equilibrium theory class in the world. He used Girard Debreu's *Theory of Value*. It was a small class and the students had to present each theorem in class, prove it, explicate it, and understand it. He just listened, commented, asked penetrating questions, and made sure the students got every line right no matter how many days they were on stage. If you were his colleague, it was always a good idea to find out what Stan thought about whatever you were thinking about or working on. His is still water that runs deep—enough said about Stan.

Then there are Jim Quirk and Rubin Saposnik, both students of Leo Hurwicz who also had mentored Stan Reiter. They wrote an expository contemporary theory text based on Debreu's *Theory of Value*. Not everyone could teach it in the masterly style of Stan, so they resolved to write a book that would try to enable more people to benefit from learning general equilibrium theory. Their text introduced many students to the mysteries of mid-twentieth century mathematical micro-theory using expository devices and many examples.

Rubin and I worked on the SLSF project and did a joint paper based on that work with Art Lindeman at the SLSF railroad. Jim Quirk had worked on default risk and financial investment in the firm. Jim got it right, very early, in his thesis. The M-M "theorem" did not work, but nobody cared or noticed. It is interesting that

when I visited the Cowles Foundation at Yale I once talked with Joe Stiglitz about the M-M theorem, and he repeated his version of the non-proof that was commonly used.



The basic idea was both simple and dead wrong: The market value of the firm was independent of the mix of debt and equity used to finance it; this was because, as was commonly argued, no matter what the proportion of shares and debt issued, an investor could always achieve his preferred level of risk by buying the securities in the proportions issued, borrowing to buy more shares or debt, and achieving through “homemade leverage” his private desired combination of debt and equity. But to hold true the “proof” required you to borrow at the same rate that the corporation paid on its bonds. The central flaw was that no one would loan you money at the corporate bond rate if you pledged any number of shares along with the corporate debt. The extra shares in the pledge account made it riskier than the bonds. Hence, the homemade leverage argument was a nonstarter, unless someone on the other side of the transaction was an idiot. Much of economics is analysis based on one-sided transaction theory, which works fine if there is an idiot on the losing side. Joe once told me when I was visiting for a semester at Yale that in his paper “proving” the M-M theorem, he at first had all the results going the other way, but changed them in proofs at the very last minute to the form that was published. As Yogi Berra once said, “When you come to a fork in the road, take it.” I wonder if Joe is still taking forks in the road.



Eventually Mervyn Miller, Joe Stiglitz, and their fellow travelers conceded the war without acknowledging defeat in any of its battles. They proclaimed from the housetops that the M-M theorem was

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correct given its assumptions, but that the theorem ignored bankruptcy, and if bankruptcy and its costs were admitted it changed the results. Wrong again. Full-blown bankruptcy isn't required, only risk of default on debt so that you don't recover all of the interest or principal on the bonds. This is not rocket science; it's just simple common sense.

Then there was George Horwich, a really good and steady friend. His early work was in monetary theory. Contrary to what many thought, his elaborate diagrams were definitely not dirty pictures. George has made quite a reputation in his "retirement" years working in the economics of catastrophes: the recovery process after major disasters such as earthquakes and floods.

John Hughes arrived in 1956, after I did. He had finished his D. Phil. at Oxford and taken a job at the Federal Reserve Bank of New York. New York was heaven for his wife, Mary Gray Hughes. She is the only person I have known from Brownsville, Texas, but I'll bet there are few, if any, others who acquired an English accent. She loved England, where she and John met, and she took on some English ways, including a little of the tongue. For her, the next best place was New York, New York, but they lasted only one year there. John could not tolerate his NYFRB boss blue-penciling all his papers. Em made him an offer and to Purdue they came.

The first year they lived in an area of large old houses over the Wabash on the Lafayette side of the river. Then they bought a farmhouse north of Montmorenci, a little country town not far from West Lafayette. The "consolidation" movement was leading to a surplus of farm homes because northern Indiana was well stocked with big combines for harvesting hundreds of acres of corn or soybeans. The revolution whose start I recounted above—the highway combine trains—was still in process. That meant that the land from three farms might be combined into one farm, which was more economical, given the productivity relative to the cost of the combine and other machinery innovations. That left two surplus houses to be sold or torn down.

John loved the country. As a professor he sometimes worked at home, but he would go into Montmorenci at odd times during weekdays. He said this meant that to the local citizens he was like

“the town fool—no visible means of support.” His house was on a highway, and once when I was out there I noticed he had a couple of new cats. He said, “Yes, if you live on a highway, you have to have lots of cats.” He also raised two St. Bernard dogs—two because the first one was killed on the highway. Mary Gray was good at offbeat names: Gerhardt and Ulrich were the names of the St. Bernards, and the Cocker Spaniel was Ahab. Ulrich, at 180 pounds, could take out half a cake—resting dog-head high on a table—with one swipe of his giant tongue. He once got through the fence to John’s garden and ate tomatoes, cantaloupe, and other produce, whether ripe or green, seeds, membranes, and all.

At one point John’s water well stopped functioning. A new pump was not enough. A new well had to be drilled, so he called a driller and got an estimate, and the driller brought his drilling rig out. He looked around and asked John where he wanted it drilled. John said, “I don’t know anything about where to drill for water. That is why I am hiring a driller.” The guy said, “Well, OK, but have you had your land divined?” (Divining is the “art” of walking over the land with the forked branch of a tree or bush, a fork in each hand, and stopping when one sees the correct bending motion of the branch, indicating the location of water below ground.) John said, “No, I don’t believe in that magic stuff.” The driller replied, “Neither do I, but it can’t hurt.”

John had an endless supply of stories born out of his direct experience: running the rapids of Idaho’s Bruneau River after World War II, the fly-fishing so good that you could catch trout in the morning without getting out of your sleeping bag; playing jazz clarinet at age sixteen in Fish Haven, Idaho, and in Wells and Elko, Nevada, on Friday and Saturday nights when the miners and cowboys were in town to party and visit the whorehouses; telling Dick Easterlin, the economic historian who studied western migration patterns, and who wondered why there were so many “seamstresses” in all those western towns, “Dick, they were hookers, not seamstresses. What the hell were they supposed to report as their employment?”; the economic historian Eric Jones telling a German visitor at Purdue, who was lagging behind the others in a group hike in the Indiana countryside, “No wonder you chaps lost the war.” John worked

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one summer for an Alaskan fish cannery as an accountant. At the season's end the "half-Eskimo" night watchman was removing all the locks and chains from the lockers and supply rooms. "Why are you removing all the security locks?" The answer, "Locks and chains are not needed now that the Christians are gone." His cannery boss referred to the Eskimo (among several Alaskan Native groups) as "n-----." John protested, but it made no difference. He said the guy had a simple dichotomy that covered every person in this world: You were either white or a n-----.

But the best way for you to get to know John is for me to quote some excerpts from his letters to me. Here goes.

*September 1, 1978*

*I have just finished my paper for the SEA meetings in DC. In it I raise the issue, yet again, about the government. This time from the viewpoint of the private entrepreneur, and what the hell kind of future this economy can have with that force reduced to arbitrage. [John is referring to a reference in my letter to the term tax arbitrage—actions that enable a company to make a profit from tax incentives without generating any new productive service. For example, Jim Tobin in those days had sold the policy idea that investment could be stimulated by an investment tax credit up to a maximum of 7 percent of the cost of the capital goods purchased. So a company A, whose business—insurance—required little in the way of capital goods, could not benefit from the tax subsidy; another company, B—an airline—could not benefit beyond the 7 percent limit. So A would invest in a Boeing 727, take the investment credit, and lease the airliner to B. The lease price enables each company to share the increased after-tax profit, but no net value is produced for consumers. You don't create new wealth by inducing people to profit from tax savings by moving money from one pocket to another.] Have you read Israel Kirzner's book on entrepreneurship? . . . the entrepreneurial role is not Schumpeter's . . . more like Stanley's sharks in the sharks and flounders paper. . . .*

*I spent ten days at the Buchanan and Tullock show in Blacksburg . . . one of three speakers. The other two speakers were [Bill] Niskanen, whose views of government make me sound like an optimist. But he is prepared*

*to do something, a whole lot of things, about it. . . . Tullock reminds me of Ed Ames, so god dam smart he thinks up the decisive counter example to his own argument before he makes it. . . . Our old student from Purdue, Paul Rubin, was one of the participants. He was very good. . . . Buchanan . . . is an intellectually honest and honorable man. I find that impressive after the bitter cynics I've spent so much of my career with, those and wise guys.*

*I wonder if all this conservative stuff I've been around these past months adds up to anything? [John's publication of *The Governmental Habit* led to unaccustomed conference invitations.] Most of them are as muddled (not the ones in Blacksburg) as the lefties one ordinarily meets [what John called the "totalitarian liberals"]. I don't know what Howard Jarvis is, most likely a shady character. . . . It is the simplicity of his view that matters. "You take money from A and give it to B. Why? Shouldn't A have something to say about it? Let's ask him." Man did that approach to public finance ever ring a bell! We were over to Galbraith's for lunch, and Mary Gray asked him what did he think about Proposition 13. He said: "Mass hysteria." You don't ask the great man hurtful questions. But the obvious question is: "Why do you think the people have become hysterical?"*

*September 19, 1978*

*In my opinion our real problem with government comes down to two factors:*

- 1. The urge to redistribute.*
- 2. The belief that government spending is "better" than private spending.*

*As I see it the really effective way to reduce the government is to counter these two. Nothing else is going to work. I don't believe appeals to personal freedom—libertarian arguments—can get enough votes.*

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May 20, 1979

*Today Stan and I made the trek down to Lafayette to say goodbye to Em [Weiler]. A sad occasion, but, always the gentleman, he made it easy for us. He introduced immediately the awkward fact that he will soon be dead, and that his time is now extremely limited. Honest to God but he made a pleasant conversation of it. What a class guy, right to the end.*

*Just as we were ready to go he thanked us for our years on the faculty and for what we all did there. He then embraced both of us and he said goodbye. Just like that.*

*We were with him a bit more than half an hour. I watched a friend of mine go from Hodgkin's disease some years ago. On that basis I would say a week. But it is hard to tell for a layman who has only watched one person go from cancer. Em is pretty well wasted away now, but still bright and in control of all his mental facilities.*

*He says that he is ready. That he has had an active life, made the most of it while he had it, and has few regrets. He is extremely pleased that he is leaving Cathy well fixed, and with all in order. He joked a bit about leaving the IRS with some problems trying to rob them.*

*I was thinking, looking at the other two, and thinking of myself, that it really hasn't been all that long. Life really is pretty short. [Yes, it's short, John, for people with so much to do.] He is proud of what we all did, and the way the old Purdue influence has spread out and carried on. It really was touching as hell. It made me feel pretty good about the accomplishment there as well as all the fun we had in the midst of all the pain and trouble.*

*Em always was in a position to see it differently from the rest of us. He was the quarterback, and we were the ones carrying the ball and doing the blocking and tackling.*

*All the way back we reminisced about the entire experience, each from his own perspective. None of us saw it the same way, obviously. We each mainly saw the others through the dust of our own work. I never regretted the time I spent there, and the way it affected the rest of my career. I've done more since I left Purdue, than I did when I was there. But that is partly due to the fact that what I learned there was so damned forceful when I came to apply it elsewhere, with other people and other problems.*

...

*For me the biggest use I made of Em himself was when I was chairman here. I did it just like he instructed me there when I was Chairman of the policy committee—decide what you are going to do, and then go ahead and do it. Don't just sit. I laughed a good deal about my "dictatorial" methods. Stan did the same cut with MEDS (Management, Economics and Decision Sciences in the Kellogg School at Northwestern).*

*So it goes on. Em is, was, a complex person to me. I didn't figure him out today—my last chance—and I never figured him out before either. He was terribly hurt when I left Purdue, but I didn't know he would be! Well, God rest him.*

*[The preceding letter reminds me that Deidre McClosky has said that for a decade Purdue had the best economics department in the world.]*

*August 2, 1979*

*Mary Gray called me the night you told her that Em had died. I'm glad the Festschrift [Essays in Contemporary Fields of Economics In Honor of Emanuel T. Weiler, edited by George Horwich and James P. Quirk, Purdue University Press, 1979] is well along. It will be a nice tribute and a reminder of what we did. I don't know about the rest, but the Purdue experience gave me enough food for thought to last the rest of my days. When I became Chairman at Northwestern I moved the place, fast. By the time the departmental deadbeats could get together an opposition, the job was done. I operated just like Weiler, as near as I could. Stan did essentially the same thing with MEDS and by the time we were retired back to "civilian life" NW was on the map in economics as something more than just an outpost. If I ever had to do it again, I could.*

*Most guys in academic life have no idea what it takes to move a place, people . . . look at Don Jacobs [dean of the Kellogg School] at NW. Hell, he wouldn't be anyone's idea of a Dean. But look what he has done! Most academics want the quiet life, and I do too, when I can get it. [Bullshit. John had a dream about getting it, but his urges were its constant enemy, down to the last.] But silence is no way to build. Old Weiler was like Henry Ford, movement, movement, keep it moving, don't let it rest.*

*Well, he meant a great deal to some of us. When I last saw him there was still that unspoken understanding there always was. It wasn't true,*

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*I guess, of his dealings with everyone. There were people at Purdue who hated him, and some who came to know how wrong they had been, too. The trouble is that life only goes 'round once, and a lot of things can't be re-run that mattered.*

Em Weiler had been selected as dean of the newly minted School of Industrial Administration, later the Krannert School, a position and program sought aggressively by Agriculture and Engineering. With the president's backing he beat out the two most powerful schools at Purdue, either one of which would have blown the opportunity big time. At the end of his brutal first year as dean, he told me it had been the most difficult year of his life, but that if you could count on only one supporter for your program, you wanted that to be the president; it was Hovde, a Purdue innovator, who did many unpopular things—such as to create the Engineering Science program over powerful internal objections. The program became absolutely first rate; it attracted the best students who got the best offers, and that competition galvanized all the other engineering programs into major upgrading.

*February 4, 1980*

*When I decided to see if Mary Gray would marry me it was a very self-centered decision. I had finally found a woman who was in all ways congenial to me, and I feared that she would drift off and I would never find another. Women were one thing; a wife something else. Time proved the wisdom then hidden in my young brain. I trust she doesn't regret it. Here we are 26 years and many hard blows later, still, for the most part congenial.*

*The bliss, with us, lasted a long time. About bliss, my big brother said something wise last summer. We had a big family reunion on my mother's 80<sup>th</sup> birthday. My brother was in the middle of his 3<sup>rd</sup> divorce. His first wife was, as mother and grandmother, invited and came up from Utah. She was in the process of leaving her 6<sup>th</sup> husband for the second time. My brother was her first. For both of them nothing had been like that first marriage. Anyhow, someone asked my brother if she still looked as good to*

him as she did in 1945? He thought about that for awhile, and answered slowly, "Nothing ever looked that good again." That's how it goes with bliss. For most people it is only once around. One pities only those who never experienced it!

May 24, 1989

I am doing just fine with my recovery from surgery, and am taking my chemotherapy without undue interference with my normal life. They give me the stuff intravenously once a week (it takes two hours to drip into my veins) and when I get to feeling "toxic" (sort of like a bad hang-over, but without the headache) they lay off for two weeks. Then go at it again. This will go on for a year. Modern medicine.

The events in China are truly stupendous. One sees, written in English, the words of Abraham Lincoln, Thomas Jefferson, and Lord Acton ["Power corrupts . . ."] on the banners being carried by the chanting students. I wondered about that. I have a student here from Shanghai, Jianxin Wang, and I asked him where the students in Red China ever learned such subversive [to communism] stuff, and he said from their English lessons! He said the government had been encouraging the students to learn English as part of their programs of economic modernization. Apparently the ideas of the English-speaking world cannot be kept out of the reading matter. . . . The students are learning the English language, but to read English beyond the elementary level the texts are full of—what else?—FREEDOM. I had never thought of it that way. But it does explain why Marxism was such a losing proposition in the English-speaking world.

One would expect western European culture, including democracy, finally to surface in Russia, since the Russians are Europeans and even seventy years of communism could not erase the civilization planted there at such great cost by the Tsars in the past, and I anticipate Marxism to vanish from Chinese thought without a trace in another generation. [In fact, China has moved remarkably far in that direction in the generation since John wrote these lines.]

[But] one cannot pretend to know what will happen in China, even from day to day. Gorbachov will apparently become a sort of unofficial

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*President of the World. He is a hero everywhere except in the Soviet Union. They are angry with him there because they can't get their economy moving, and they blame him. The Chinese, who don't need to be told how to organize and run business enterprises, are going to town on their own. They may have to give the Russians lessons! After all, it cannot be easy to unravel a command economy and put it on a market basis in any reasonable length of time [as indeed we found out in the Russian experiment]. The Chinese have been terribly skillful at it, compared to their Russian comrades.*

*The ultimate right of private property transferred to this country in the 17<sup>th</sup> century in the tenure, free and common socage, was the right of "waste." A few months back I bought, through the mail for \$99.00, an electronic gadget, a little black box that is a speller, dictionary and thesaurus, with 250,000 words. The idea is that I would carry it with me, and Mary Gray could too, on our travels, when we are usually writing things in addition to sight-seeing. My gadget was defective. I phoned the distributor—the thing is manufactured in Korea—to complain. They said that they would have to have proof that I owned the thing before they would honor their guarantee. Acting on a professorial impulse, I sent them the gadget and said: "As proof of ownership, if you cannot repair this thing, then you keep it. Right of waste; I was destroying my property without compensation. Two days ago a new one came to me in the mails, without comment! Education is not always worthless.*

*Mary Gray has now finished her novel, upon which she has been working for eight years. I read it straight through, and couldn't put it down. Our procedure is that we don't bother each other with "work in progress" so I had no idea what it was about. I am not a fiction reader, so when I read a book of fiction straight through, it must be good. I think she will send it off to her agent in another week or so. Then she must wait for a publisher to bite. In anticipation of that agony, I remind her that my book, The Vital Few, was turned down by nine publishers, and has been in print for a quarter of a century. [It's now more than forty years.] Publishers often don't know what they are doing. But I maintain that any reasonable book can find its publisher, ultimately, so you just have to suffer out the waiting.*

*February 17, 1990*

*If you don't mind, I am using you as a reference. The Dean of CAS here is putting up my dear old book, *The Vital Few*, for some kind of an award for writing about entrepreneurs. I don't know more about it than that. . . . It has been a long time since I needed a reference for anything, and most of my old teachers are either dead or retired. But you were there when it was first written, and can attest that entrepreneurship wasn't exactly a hot topic when I wrote the book back in 1962. I took a chance, then, and it certainly paid off for me in the long run. The thing is still in print . . . and sells right along at a couple of thousand copies a year. . . . I added two more biographies in 1986 to the expanded addition. I think that may be what causes it to keep selling.*

*All is well with us. I have finished with my chemo therapy, and so far so good. It is not a process I would recommend, but if you have cancer, and the oncologists want that, you would be a fool, or a big risk taker, not to go along. . . .*

*I don't know if you have seen any of Stan's sculpting. He is a regular Michelangelo. Mary Gray bought me a small statue for Xmas. I didn't ask what it cost, but it was enough that he apparently gave the proceeds to charity! He does sell them. And has commissions. I have told him to stop worrying about economics and just sculpt. Someone else will think of the theorems, but no one else will be able to sculpt that way. If I had that much talent at something, I would be exploiting it. One doesn't live forever, and one has no tenure on one's talent. It can just stop some day, as it did with Sibelius, leaving him with a half century to just stare into space before he died.*

*John*

I miss John, and it will always be so. He was one of those rare friends—an intellectually intimate brother who both enlightens and lightens your way. He always had probing questions about why, how, where, and when. But mixed in with the serious scholarship there were always laughs and good cheer. Mary Gray told me that when I sent him a copy of my book, *Papers in Experimental Economics*, he

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was in the next room tearing apart the mailing carton, then let out one of his famous trademark laughs and some chuckles. Mary Gray asked, “What is it, John?” And John replied, “It’s a Nobel Prize, that’s what it is: a Nobel Prize.” I am not sure that book made any difference, but it was symbolic to John, who had unbounded confidence in his friends. He was personally thrilled with their every success, and always discounted all downers and disappointments. No one dared to squelch his enthusiasm about a project, a friend’s project, or a friend or loved one. His happiness was always both self- and other-centered.

If anyone could have survived colon cancer, detected too late, it was John. He fought for his life and would not concede until the very end, bearing out Dr Hertzler’s observation that irrespective of belief systems, people in the end accept the inevitable in quiet peace. John was a Jack Mormon, defined by Howard Jarvis of California Proposition 13 fame as an “ex Mormon who smokes and drinks.” But his Mormon heritage, combined with his intellectual endowment, served him well as a scholar and as a man—here was a man who loved, and was loved by, those he befriended. He had great faith, if not conventional faith. One of my most treasured experiences was to write a tribute to him and to savor the moment as I read it at the gathering to celebrate the life, influence, and accomplishments of this wonderful person. It took me months to write it. I wrote a draft, revised it, set it aside, returned to edit it some more, over and over and over again, until there were no more additions, edit, subtractions, or fine-tunings left in me, and I finally let it be. That exercise, over the months from his death in the spring until he was honored at Northwestern the following October 1992, gutted and cleansed me of all grief. I was free at last, thank God almighty, free at last, happy to have known and loved this great friend, colleague and confidant. Here is my tribute:

*Jonathan Roberts Tyson Hughes  
A Memorial*

On this occasion  
we are privileged to celebrate  
the memory of a wonderful life;  
one that spanned sixty-four years;  
one that touched and altered  
dozens, likely hundreds, of other lives.

In his life John taught us how to live  
with energy, splendor, joy, and hope.  
In his death he taught us how to die  
with stubborn resistance, candor, optimism, and inspiration.

I am awash with delightful memories,  
but I will remember best and miss most  
his unflagging personal support;  
no one else could get as genuinely excited  
about your work as about his own.

He believed in his friends,  
as he would have them believe in themselves.  
He never allowed me not to believe in myself,  
nor other friends not to believe in themselves.  
He awakened the hidden strength within you.

When he wrote of the history he had learned  
it was as if he had experienced it,  
much as he spoke and wrote  
of the history he had truly lived:  
down the white water rapids  
of Idaho's Bruneau River;  
playing jazz clarinet in  
Ely, Wells, Elko, and Fish Haven;  
the Great Strike of 1951 at Nushagak Station.

Vernon L. Smith

I first read *The Vital Few*,  
and its masterful essay on Brigham Young,  
in manuscript, then entitled *The Good Land*.  
I was astonished for it read  
like he had been there, lived it all.  
That's when I knew how  
good writing is born of personal—  
even if vicarious—experience  
that draws the reader into the phenomena, as it lived.

I was disheartened that the title was changed  
to the colorless,  
though accurate *The Vital Few*,  
thus eliminating John's ringing text from Exodus 3:8:  
"And I come down to deliver them  
out of the hand of the Egyptians,  
and to bring them up out of that land  
unto a good land and a large,  
unto a land flowing with milk and honey."

John loved the land, because he was of the land:  
Idaho, Utah, Nevada, Washington, Indiana, Illinois, Vermont.  
His heroes were most especially  
of the Good Land  
that flowed with the milk and honey  
of nineteenth-century opportunity.

John catapulted himself into your life,  
a fact that, shall we say, was not universally appreciated.  
I welcomed and blossomed from this warm intrusion  
for he was the brother I never had,  
the confidant who nourished so very deeply,  
and meaningfully.

He came to Purdue for one reason:  
he told me that he could no longer tolerate  
his Federal Reserve Bank superior  
blue-penciling all his work.  
Such was his fierce Mormon independence.

After Purdue,  
although there were sometimes long spaces  
between our encounters,  
somehow we managed always to pick up  
where we had ended,  
as if it had been but an hour, or a day.  
With John there were no beginnings or endings;  
just the flow of experience shared.

It was this continuity, this dependability  
and reliability in the face  
of unimportant interruption,  
that most significantly  
defined our relationship.

Others, I think, must have shared  
a similar experience,  
because of who he was.  
That continuity defined and gave sustenance  
to an enduring thirty-six-year bond between us.  
I shall miss that bond dearly,  
but without repining,  
because of the strength he inspired.

His works,  
his personal influence,  
will of course live,  
as resistant to extinction as was his spirit to the end.  
This is assured by those of us here,  
on this day, and elsewhere,  
who were touched so intimately by him,  
for with John there were no beginnings or endings.

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Now it is for each of us,  
the living, privately,  
as well as through this congregation,  
to find whatever meaning for our lives,  
that is contained in his death.

He came  
as dust  
delivered of the good land;  
he chose to return  
as dust, for renewal,  
unto a land made sweeter by his coming.

Vernon Smith  
Tucson, Arizona  
Delivered at Northwestern University  
Alice Millar Chapel  
October 25, 1992

*Chapter 12*  
**Yankee Land and West  
with the Night**

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Out here we call it (BLM) the Bureau of Bad  
Management.

—Pete Steel

In 1967 Joyce, Eric, Deborah, Torrie, and I moved to Sherborn, Massachusetts, where we would live until 1972, with Joyce serving in her first position as a Unitarian minister. Joyce finished her degree at Meadville Theological School, University of Chicago, in 1967. Although women in the ministry were not new for Unitarians, they were not exactly mainstream, and Joyce was essentially a pathbreaker in the emergence of a much greater recognition for women. That process, however, got off to a slow start.

Joyce was at the top of her class with excellent credentials, but she received expressions of interest from just two congregations. We had agreed that she would locate a position best for her and her career, and wherever that was I would find a position as best I could. I was resigning a chaired full professorship at Purdue, and anticipated no difficulties in relocating somewhere. One congregation was in Washington State. I knew and greatly respected Doug North at the University of Washington. I had been there to give seminars, and I planned to contact Doug if Joyce worked out something in that region. Wherever we went, I knew that I might have to accept something temporary at the beginning because we might not know Joyce's decision until summer. Since I had no sympathy for the tenure system and had long favored that it be abolished, I was comfortable with resigning from Purdue before knowing anything about my future. Freedom is ever available in this wonderful land; all you have to do is to exercise it without fear. There will be losses, of course, and I have had my fair share, but also new opportunities

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and gains theretofore not available. And “breaking loose” was indeed our experience.

Joyce gave a sermon and visited the congregation in the Seattle area. She received high compliments on her sermon—Joyce was a poet and a thoughtful speaker. The congregation considered her candidacy very carefully, but decided that they did not want a “lady minister.” Wow, was that amazing—not the decision or the reason for not hiring her, but the fact that it was put in writing and signed officially. There was no way that I could imagine a Unitarian congregation considering a black candidate, then turning him or her down because they did not want a black minister; so much for the facts, and the times—they were changing at a snail’s pace for professional women.

It was much different in Sherborn. They liked her and gave her an offer, and she accepted. Sherborn was one of many historical New England towns—George Washington passed through Sherborn in his stagecoach on the way from Cambridge to rejoin his “army,” and to hear the locals talk you would have sworn that it had just happened last week. As soon as we learned of our destination, I was in touch with my contacts at the Harvard Business School, the MIT Sloan School, and Brown University, and told them I was moving with my wife to Sherborn and I was looking for a job. They all responded favorably to the idea of some kind of position, but Brown seemed best for me in terms of interesting teaching opportunities, and I was bringing an NSF research grant with me. Also it probably helped that Brown cut my salary less than I would have had to accept from the others, and it was an easier commute on the back roads from Sherborn to Providence, Rhode Island, than to Cambridge. The East Coast was in vigorous competition to cut my salary! I ended up at Brown, but with a leave as a visiting professor at MIT in the first semester. I wrote up some research, thought about the design of some new experiments, and developed some new ideas, but mostly I just sat there in my office thinking, writing, and picking my nose.

The Sherborn congregation was wonderful. I was very excited about this new venture and a return to my Unitarian roots with Joyce and the family. The twins had turned seventeen in May and Torrie had turned twelve in April. They would be interesting years

living in Sherborn, where for the first time I had a sense of Yankee New England culture, a sense not easily acquired when living as a graduate student in Cambridge from 1952 to 1955.

I soon discovered why we were in Sherborn. New England has a tradition of strong women with outstanding leadership and intellectual qualities. For Sherborn, Joyce was a slam dunk.

A member of the congregation I met at the reception for Joyce volunteered that he had lived in Sherborn for fifteen years. I said something to the effect that he was an old timer. He corrected me, pointing out that you are a newcomer in Sherborn until you were there much longer than fifteen years; in fact, you really needed to be second generation. Sherborn and nearby Dover, where the high school was located, were Boston Brahmin country towns. They housed the upper upper-class that I learned represents old wealth: the Cabots, Lodges, Saltenstalls and so on. Wealth has to be in the family for more than a couple of generations to count very high in New England. The amount of wealth is much less significant than how far back it goes. The Kennedy's were nouveau riche and counted for nothing with this crowd. A few local families owned islands off the coast of Maine, and one of the parlor room stories was about the Kennedy's (it never made any difference which ones), who were exploring the purchase of a Maine island that was up for sale. The claim was that when that information got around, one of the Brahmins bought it to keep the Kennedy's out of that Maine island community.

Of course, Chappaquiddick came in for much juicy gossip by people claiming to be in the know about what really happened with Mary Jo Kopechne.

The East Coast fighting cock tradition is strong in the cultures of New York Puerto Ricans and New England Yankees. We discovered the Yankee expression of this tradition shortly after moving into Sherborn. Our two dogs soon became locally famous: King, who was of uncertain ancestry; and Tanya, who was a ninety-pound AKC-registered Alaskan malamute. King was a healthy old guy who had adopted us in West Lafayette in 1956. I had purchased Tanya from a malamute kennel in South Bend, Indiana, in 1960 when she was four weeks old.



King was an accomplished hunter of rabbits, squirrels, and raccoons. He taught Tanya the ropes, but she never quite developed the finesse with which he captured squirrels. If he flushed a squirrel, instead of running directly at it, he ran sideways to position himself so that the squirrel's target escape tree was between him and the squirrel, putting him out of the squirrel's field of vision. Seeing that King was not bearing down on Mr. Squirrel, the latter bounded in a more relaxed manner toward the tree. Suddenly, King appeared from behind the tree between the tree and a surprised Mr. Squirrel, who took to the air to leap over King, often, but not always, with success. Tanya, however, would just barrel directly at the moving squirrel—dirt, brush, rocks, and leaves flying in all directions—which was never effective unless the squirrel was stupid enough to leave its tree-covered area and venture into open ground. For this reason, it seems, King sometimes slipped off without Tanya when he had the urge to go for squirrels. Dog owners can tell you all kinds of amazing mental feats their pets can perform, like mine about King. More scientific studies are documenting them. For example, *Science*, on June 11, 2004, reported experiments with Rico, a nine-year-old border collie whose owners claim he knows the names of some two hundred objects in his huge collection of toys. Carol Breckner sent me the article via an e-mail she entitled "Rico is smarter than the average university administrator," but we only have some interesting comparative clinical, not controlled experimental, observations on her hypothesis. Rico was tested by putting ten of his toys in a room isolated from his owners. The experimenters instructed Rico to fetch two randomly selected items at a time identified by name. In forty tests, Rico got thirty-seven correct—this particular noble dog had

a vocabulary comparable to those of dolphins, apes, sea lions, and parrots that have undergone extensive professional training! Moreover, the researchers then repeated the test, now putting seven of Rico's toys in the other room along with one he had never seen before. His owner then called out the unfamiliar name of the new toy. Rico correctly retrieved the new item in seven out of ten tries. Carol was right!

Humans are supposed to be the only animals to use language in novel new ways, but that is probably just academic horseshit. It does not explain a number of animal accomplishments and some controlled experiments noted by Temple Grandin (and C, Johnson) in *Animals in Translation*: 1) Alex, a gray parrot, was taught to identify colors verbally by sounding them out (such abstract concepts were once thought to be impossible for birds): One day Alex, seeing his own image in a mirror, asked, "What color"? Upon being told, "You're a gray parrot," after asking six different times, Alex was able to identify this new color in other objects. 2) Blue jays, famous for hiding food, do it when other jays are or are not watching; but when other jays are watching and are then removed, the jays dig up all the meal worms they had hidden in the sand while being watched and re-hide them in other parts of the tray. 3) Two crows, Betty and Able, must learn to choose a hooked wire rather than a straight wire to access food. Abel snatched the hooked wire from Betty one day, leaving her only the nonfunctional straight wire, so she bent the straight wire into a hook! Moreover, she did it nine times using different techniques, even changing the angle to improve the fit of the tool. Nothing in nature can be bent to hold its shape like wire. Betty was not resurrecting some primitive bird-brained knowledge.

Scientists, as is their wont and duty, are skeptical of all this, but to this one it is completely natural

that such a “fast-mapping” brain module (this is the name of what Rico is using in this exercise) would have emerged early in mammalian forms going back to the dinosaur extinctions. It would have excellent adaptive value in foraging. Our King knew that if, on seeing a squirrel, he moved sideways to get the squirrel between him and the tree the squirrel was aiming at, and then raced to the tree to surprise Mr. Squirrel on the other side, he increased his kill rate. Tanya just barreled at the squirrel and always failed, but she had not spent any of her early life living off the countryside as had King the stray. These modules need input from the environment to be initialized and developed for particular contexts. The saying “You can’t teach an old dog new tricks” has much validity.

But specialization is important, even for dogs: Tanya brought brute force to the hunt, and that was handy for King on other challenging missions, particularly in coon hunting. Coons are extremely dangerous to dogs—half cat and half dog, they can tear open a dog’s underbelly—but against the two of them even the biggest coon had not a prayer. I watched Tanya catch and dispatch one on a moonlit night next to one of Indiana’s bass lakes. King was not with us, because he sometimes roamed too far, and I wanted to fish and not have to look for dogs. Asleep, I was awakened by Tanya, who was tied nearby to a table and much agitated by something. I pulled out of the sack, donned pants, and looked around—there was nothing anywhere and you could read newsprint in that light. I untied the leash end of her tether and walked her around the Scout to show her that all was well, there was nothing to spook over, but I was wrong. As we rounded toward the front, she suddenly bolted to the front wheel and pushed her head up into the wheel nacelle to the top of the tire.

When she came back there was a coon in her jaws. She held it firmly against the ground, not turning it loose, knowing that if she did, she would be in deep shit. She kept her grip with long teeth rummaging around in head, neck, and flesh. After the coon was still she very cautiously and slowly began releasing her grip. There was a slight wriggle, and again she sank those one-inch-plus malamute canine fangs into flesh. Finally, all was still, and she backed off, looked up to me, and wagged her bushy tail. She knew what she was doing. I did not.



One Sunday in Sherborn I awoke at 6:00 a.m., and as I was getting dressed, I looked out the front bedroom window. In the front yard below, King and Tanya were stretched out contentedly, surrounded by a sea of chicken feathers. Damn, whose chicken coop had the two of them raided? I went downstairs to survey the damage. I was new in the neighborhood, and I walked around to see if I could find anyone with a chicken yard. I found nothing. I returned and cleaned up the yard and watered but did not feed the dogs. They did not need a reward, and it was evident that they had no interest in eating the usual fare. I decided to wait and see what I could learn about the source of their comfort.

The next day was Monday, and Eric, Debra, and Torrie were off to school. Torrie came home on the afternoon school bus and was in tears by the time she was at our house. She said that the other kids on the bus were saying that our dogs had gotten into the Grey's chicken yard and created havoc. Torrie was convinced that they had it wrong, that King and Tanya had done no such thing. I pointed out that it was no doubt true, and that we would just have to make amends.

Some distance up the road from our rented first home in Sherborn was an old farm house and acreage owned by Bob Grey, whom I now was able to identify. I went to his house, introduced myself, told him what I had learned, and told him that I was there to pay damages. He took me into his backyard, to show me his chicken yard. It was a fenced area. Inside the fenced area were four wood-framed cages,

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each enclosed with heavy-gauge fence wire. The dogs had entered the larger enclosed area by digging under the wire fence, as I knew them to be completely capable of doing. To keep them in my fenced backyard in West Lafayette, I had wired the fence with a charger suitable for confining bulls—about 10,000 volts—and they lost interest in their previous habit of tunneling under that chain link fence.

The hens in Bob Grey's chicken yard were in the enclosed area, but outside the cages. Bob said that all but a couple of the hens escaped by going up into the lower branches of the trees. I thought that showed more female agility and smarts than I had ever witnessed among my mother's chickens, but I accepted it. The four cages, however, had been ripped open. Bob Grey was amazed that all could have been ripped open, and the contents—a rooster in each—taken. I was not in the least amazed. Tanya had feet as big as my fist, with heavy long claws, and she could easily negotiate the wire with minor help from King, who was more likely to end up with a torn nail. I would pay for the damages.

He said that the hens were of "little value," but the roosters cost him \$150 each. Wow, some roosters, I thought to myself! In response to my puzzlement, he explained that they were really pets and were a valuable special breed. This is the first time ever that I had heard of any special breed of chickens that were pets, and that the roosters had to be kept separated in wire cages! And cost \$150 each at 1967 prices? None of my business, so I thought nothing of it, wrote him a check for the roosters and some change for the damage, and went home. I soon learned that it was all over Sherborn that the new Unitarian minister's dogs had broken into Bob Grey's fighting cock cages and eaten them all! That New England town buzzed with the novel news and loved the humor of it all. I learned about this Yankee tradition and why those "pet roosters" were so valuable compared with the hens.

Someone pointed out to me that my homeowners' insurance covered property damage by an owner's dogs. I called the insurance company, and confirmed that that was true. An insurance adjuster came to the house to investigate, since the bill was over \$600 for the birds plus something for the fence damage. I told him the story. Naturally, he wondered why those roosters were so pricey, and

I explained by simply telling him what Bob Grey had said to me about pet chickens. He accepted that explanation, and I am sure he confirmed it with Grey. The insurance company reimbursed me and the matter was settled.

I forgot to mention that the sport of cockfighting is strictly prohibited in New England, New York, and throughout the United States. This prohibition accounts for the circumspection about pet roosters in Yankee-land, where the culture thrives in spite of laws against it. It's generally called "order without law," but in this case it was order contrary to law. Cockfighting is also an attribute of Southwestern Hispanics as well as New York Puerto Ricans, but my dogs never tangled with any of them, or they might not have survived as my pets.



Dogs were domesticated from wolves (not jackals or coyotes, to which they are also genetically related). The archaeological record shows domesticated dog bones buried with human bones going back 14,000 years ago. But recent DNA evidence shows that domesticated dogs diverged from wolves 135,000 years ago. New fossil evidence finds wolf bones in the vicinity of human bones. Wolves and more recent humans share many social attributes: team hunting; non-kin and same sex associations; territoriality; and, of course, we know they worked together in implementing big-game hunting strategies. These observations lead to the hypothesis that humans co-evolved with wolves, then dogs: Human fitness was facilitated by human-wolf cooperation. Some have speculated that the wolf-human connection affected our evolution.



The Sherborn oral-history tradition was something to behold. I heard a stalwart member of the church, Mrs. Douse, whose family owned a large apple orchard in the town, and who was president of the Sherborn Historical Society, speak. She talked about

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Sherborn's receiving word of the battle at Lexington and Concord. The Sherbornites immediately dispatched a contingent of volunteer fighters, but they arrived too late. The battle was over, and the colonists had already beaten the Redcoats. Hearing Mrs. Douse speak of this early history, I had to remind myself that she could not have been there at the time. It was such a living reality for her, however, that she sounded as if she were giving an eyewitness account.

Soon after we arrived we were invited to dinner by one of the members of Joyce's congregation. The house was originally built in the eighteenth century, prior to the Revolution. The owner proudly took us upstairs to see the "colonists' sweet revenge," an outsized floor plank under the rug. I was told that all trees in the colonies that exceeded one and a half feet in diameter were reserved for the King's Navy to be used for masts. So colonists went to the trouble to harvest one tree in that class and cut a floor plank to be installed upstairs and covered by a rug. I loved it. The revolutionary spirit was still alive in the pride of the New England Yankees.

Joyce and I attended our first New England town meeting. What an experience. We all voted on every detail of municipal action, such as whether or not to buy a new police cruiser. No doubt about it, transaction cost increases rapidly with group size, but it is not perceived as a cost by those who attend the meeting—it's a big social occasion.

The American Economic Association meetings were held in San Francisco sometime before I was expecting to leave Purdue. These meetings, fully capable of boring you to tears, were memorable that year for several reasons. One was George Dalton from Northwestern, standing in the lobby talking with John Hughes. The Shriners were also meeting in San Francisco. George looked up and saw six or eight Shriners walking down the hall wearing their truncated cone hats with the tassels hanging down to the side. George said to John, "Look, there goes the board of editors of the Econometric Society." (Someone since has called the society's journal *Ecclesiastica*.)

Another event was a call from an academic chemist, Moyer Hunsberger, Dean of Arts and Sciences at the University of Massachusetts. He wanted to talk with me. As dean he had put together an outside committee to advise him on how to recruit a

good economics department for Amherst. As I recall, the committee was composed of Bob Solow, Larry Klein, and George Borts. They suggested that he should try to recruit me, and to enlist me to go after some others. The committee was aware of our nation building at Purdue.

I had not thought again about my conversation with the dean, but he contacted me again after moving to Sherborn. The short version of it is that he made me an offer that I couldn't refuse: He restored my Purdue salary—I think it was about \$30,000 in 1967—and I would teach one course per semester, as I had been doing at Purdue as a Krannert Outstanding Professor, and continue my research. I accepted, and ultimately at U. Mass. we recruited Rich Kihlstrom, Lennie Merman, Hugo Sonnenschein, Ron Oaxaca, John Roberts as a predoc visitor, and assorted other outstanding people, but it was short-lived.

Moyer ended up in one of those garden variety university political hot corners—his mail was being intercepted and opened, and it was discovered that he was working on a coup that would bring in yet another group of well-known scholars from outside. He was caught in technical violation of faculty union rules, and being of high moral character, he felt that he had to resign. His many supporters, the chancellor, and our group could not turn him around. As they say, academic politics is the worst there is anywhere because the stakes are so low. Faculty like to divide up the existing budget, not use it for development, which tells you why any sort of academic entrepreneurship is all but impossible. I would find that characteristic in spades, years later in Arizona, and seven of us would leave for better opportunities elsewhere in 2001. At Arizona, I and my associates would be charged (unofficially of course) with fraud and criminal behavior, and a witch hunt would be set loose that would end with the tacit admission that the original charges were without merit—“no admission of wrongdoing” by all parties was the official face-saving language.

At U. Mass. in due time we got a new dean who felt the department was badly unbalanced: We needed a Marxist theorist, a Marxist labor economist, a Marxist development economist, a Marxist monetary theorist, and so forth. He moved to do it. We insisted on one basic

condition. They had to be top-notch economists, and I am damned if he didn't end up finding and recruiting the best: Herb Gintiss, Steve Resnik, Sam Bowles, and assorted others. Furthermore, because their opportunity cost was low, they were hireable. I had grown up with left-wing types through age twenty-one, and for me it was just a bunch of intrinsically smart guys whose natural maturation and education had been delayed by about a quarter century. I think I was about 65 percent right in this evaluation. Most of them matured enough to go on to higher accomplishments.

The crew we had put together at U Mass was in big demand, regularly getting offers all over the place, and the new dean's heavy-handed intervention—not new, but in a new direction—raised the local transactions cost too much in trying to defend the ramparts. It's remarkable how much damage can be done by an administrator who has no deeper vision than one driven by ideology, whether of the left or the right. Most people cannot judge anyone until they know what they think is your politics. They are baffled listening to your talks about economic issues if they get a mixed message and can't locate the box to fit you into. Then they get you tagged as a "conservative," but find that you opposed the Vietnam War, or are astounded to learn that the "conservative" Cato Institute was dead-set against Desert Storm and this latest Iraqi war, whatever it is called. The great thing about America is that you are free to be independent, and there are lots and lots of us out there.

In the end, the new department scattered to better jobs and more freedom, and we gave up on the department-building business at U. Mass. Steve and Herb tried to convince me to return after going to California in 1972, but I was worried that they wanted me to be the showcase "black"; i.e., be the "non-radical" who kept them honest. I think I may have been wrong in that worry, but it was real to me at the time. I would have been OK there, but I had lost my colleagues. U. Mass had an interesting blue-collar community, with lots of upwardly mobile kids who could not have gotten into prep school—the sons of Boston cops and firemen and tradesmen, to whom I could relate—but the politics of that one-party state were scary.

The legislature constantly and dependably tried to micromanage the university. This is a problem generally with state universities and is why a little privatization is in order, but in Massachusetts it was carried to very clumsy heights; for example, clipping the chancellor's (Oz Tippo's) budget freedom upon learning that surplus funds in the coal budget were being used to buy library books—shame on him, exercising local discretion when the legislature knew best!

Basically, I was a fish out of water in Massachusetts, and I was ready to return to my Western roots. Those roots had already taken me to the Southwest: Colorado, Utah, New Mexico, and Arizona. While living in Sherborn, I would fly nonstop Boston to Denver, meet Charlie Plott and, on a couple of occasions, our Merrill Lynch Indianapolis stockbroker, Langdon Kumler. From Denver we would take Frontier Airlines to Junction City, then Moab. At Moab "International" we would have a bush pilot from Hub Airlines fly us into Hall's Crossing, where we would rent a boat. The Hub flight would be in a Cessna, and I remember the pilot took one look at Charlie, then scanned Langdon, a six-foot, six-inch mountain of a man—Langdon had lost weight and he was down well below the Colts' Big Daddy Lipscome to about 280 pounds—then he looked at me, relieved slightly, and said, "I sure hope you guys ain't got much baggage." We piled into his Cessna, and he hopped in with a small cloth bag. I said, "What's that for," as I knew that he was flying right back to Moab. He said, "That's my survivor kit," and hit the starter button. By early the next day after leaving Boston, I would be on Lake Powell with these bass hunters, but only after a long night sleeping in a mobile home, rattling from one end to the other with the snoring of Langdon, whom we always banished to the other end of the house, and closed all the doors in between, but to no avail.

My family really got to love the Four Corners area—Delores, Cortez, Telluride (before it got ski-slope fever), Monticello, Moab, Blanding, Mexican Hat, Kayenta. I have already written of our introduction to the area the year we bought our Scout 80. By 1969 we had bought an eighteen-foot outboard cabin cruiser and rented dry-dock space for it at Hall's Crossing. Then we looked for land, and after considering two large acreages over in Colorado, we ended up buying a four-bedroom house on a half-acre in Monticello, Utah. It

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had a couple of dozen Mormon-planted fruit trees, and we were as happy as the proverbial pig. We lived summers in Monticello, with me writing and fishing, and Joyce and I—sometimes all of us—four-wheeling from Canyonlands to the Maze, and from Telluride over the spine to Ouray or up Black Bear jeep trail and over that 13,800-foot pass to the million-dollar highway, across to Engineer Pass and down the back way into Silverton. Joyce, Torrie, Eric, and Deborah sure got big doses of mountain living. No wonder Torrie ended up with her husband Jim on a remote acreage in Colorado's San Luis Valley with two goats for backpacking and solar panels for powering lights and the well-water pump in their Earth Ship home. Years later when I read Abbey's, *The Monkey Wrench Gang*, I could recognize all of Hayduke's jeep chases in southeast Utah.

One summer Joyce and I drove from Monticello to Blanding, where we could attend the nearest movie theater in that area. We went to see *A Man Called Horse*. Well, friend, this was Native American (known then as Indian) country, and if you want to know what it is like to feel like an outsider, see that movie in Blanding, Utah, surrounded by Native Americans cheering and yelling as the protagonist is dragged behind a horse and otherwise tortured with hooks in his skin. They relished the spectacle of that white man's getting his just deserts. Joyce and I sort of slumped down in our theater seats hoping not to be noticed. Afterwards, we high tailed it out of there back to Monticello.

During the 1960s and 1970s, we would do four Grand Canyon whitewater trips embarking in rubber rafts from Lee's Ferry, just above the Navajo Bridge across the Colorado River, and disembarking at Diamond Creek, some 240 miles downstream. These are the only two points of easy road access to the river's edge from the eastern side of the Colorado. Elsewhere, access is blocked by high cliffs and ragged peaks. You get access to Lee's Ferry by crossing the Navajo Bridge—the only bridge over the Colorado between Glen Canyon and Hoover (or is it Roosevelt?) Dam. From the west bank of Lee's Ferry, first, you go through Marble Canyon, fifty miles south to the river's confluence with the Little Colorado draining in from northern Arizona, and bringing with it a load of mud; second,

through the various geological phases of the Grand proper until the Canyon begins petering out at Diamond Creek above Lake Mead.

When you disembark at Diamond Creek you are on foreign (Native American) soil, and you have to contract with the locals to pick you up and transport you to domestic soil. On one of these transitions, Ken Slight, our guide and outfitter for Ken Slight Expeditions, sat behind the driver; they knew each other and were talking. The Native driver brought Ken up to date with new developments, celebrations, and plans in the community. A new tribal recreation center is now nearing completion, and come August it will be dedicated in a huge celebration. People will be coming from all over; there will be contests; games; and other great social events. Without the least politically correct hesitation, Ken asked, "When will the fights start?" The driver was offended not in the least, and excitedly began reciting other recent events in this category, indicating that they would no doubt begin most any time.

We also did one river trip embarking at Green River, Utah, on the slow meandering Green River down to its confluence with the Colorado River in Canyonlands. On the Green nothing has to be tied down. We could float along with the boats in the warm river water, stopping now and then for hikes up beautiful side canyons, loaded with rock art, and climb up to the flat overlooks where early descendants of the First Americans would have camped, and manufactured arrow and spear points, and other cutting and scraping tools. There we found artifacts of these early hunter-gatherers and observed where they watched for game, friend, and foe. Rain exposes new artifacts, so after a rain it always pays to explore again terrain that has been examined before.

On the cliffs are their former dwelling places with mano and metate grinding stones still to be found. A long hike up Barrier Canyon brought us to the truly astonishing and awe-inspiring great panoply of life-size figures floating with majestic, ghostly beauty and wearing studded crowns like chieftains and shamans out of a prehistoric fairy tale.



Joyce and I have also four-wheeled into this same region, rich in the "Barrier Canyon Art form," from

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landside, but it's impossible to ascend the steep sandy slopes without letting much of the air out of your vehicle's tires. In deep sand you can easily bog down all four wheels with hard tires that just mine sand with minimal forward motion. My Scout 80 always rolled on tube-type tires, and we carried an old hand-operated tire pump to re-inflate the tires when we returned to packed earth trails. When I bought a second Scout in 1972, I had tubes installed in the tires. At around 10 psi the seal around the rim side of a tubeless tire will break open and let all the air out. The dealer who sells you the tires, which he also guarantees, winces when you explain to him why you need the tubes installed in tubeless tires.



When the Green River joins the roaring Colorado, you pull over to the bank, rope everything securely to the boat frame, and get ready for Cataract Canyon. You also rope the three separate rubber rafts side by side into a triple rig to give the whole serpentine mechanical system greater dynamic stability with the outboard at the back of the center raft. Even if the tie-down had already been done, the rope connections needed to be rechecked and retied. There are no rapids in the Grand like those in Cataract. Cataract has nothing comparable to Lake Powell upstream from it, releasing water that generates electricity according to the diurnal cycle in the demand for hydropower.

Hydro is a valuable source of peaking energy, wasted if used for the delivery of low-value base load energy. Hence, you generate in the daytime hours, and let the lake refill at night. This gives you alternating pulses of water flow determined by power deliveries in Los Angeles and Phoenix, reminding you that the long wire tentacles of distant cities reach out to you and project their undulating rhythm into that beautiful remote wilderness. At Lee's Ferry—only thirty miles through narrow Glen Canyon downstream from the dam—the flow-level pulses are large, and ever so gradually their amplitude dampens to nothing as you move downstream to Diamond Creek.

But where the Green joins the Colorado you are basically negotiating a wild river. When we left the banks of the confluence, the springtime flow was 60,000 cubic feet per second, nearly four times the typical off-season flow. When we pushed off, our hearts were pounding with anticipation as we approached the big drop—three back-to-back descents by the riverbed with only short spaces between. The first rapid produced a backwash over the outboard motor. Our knuckles were white, our sphincters tight, as we held onto ropes wrapped around the raft tubes. The backwash of the first great wave swamped the Mercury outboard, we lost power, and as Ken Slight yanked the cord, attempting a restart, the rig slowly and steadily drifted from a proper diagonal orientation with the onrushing current, giving us maximum protection from a rollover, to a straight left endwise orientation, giving us the absolute least rollover protection.

I was on the outside leading rear edge of the first raft. As we started from the bottom of a twelve-foot plus wave, I looked up at its edge in the sky, and as all such waves are wont to do, it curled back toward us, and I knew that there was no way we could ride through that backwash without a curling rollover. The only question that momentarily crossed my mind was whether it would roll all three into a big bloody *C* and dump us bottom side up into the current. It did not. It was a *J* roll: The first rubber raft on our triple-rig pancaked over on top of the middle raft, and the other two held against another tumble. I ended up on the right rear edge of the middle raft to the right of Ken's motor position.

No one, and none of our gear, was dumped into the river, such was the skill with which Ken Slight had lashed the rafts to each other and all the gear to the rafts. Only the people were left loose, raft-top, as no one wants to be tied to a raft that goes over. It is much better to break free and float with a buoyant life preserver, hanging on to the side of the boat. We were badly shaken, to say the least, and there was one bleeding nail on someone's—I think it was Ann's—hand, but we were whole. The motor restarted and we pulled quickly to the bank before the next drop to inspect everything, including ourselves.

The next two drops and all later rapids were negotiated without mishap, and we did not lose power. Ken hit them diagonally, and it

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takes more than a 60,000-feet-per-second throughput in Cataract to roll that first raft when it is leading diagonally with its front left edge.

Georgia White, the Colorado River running legend, went through Cataract Canyon at a scary, precedent-setting flow rate of 100,000 feet per second. How was that possible? She did it by flat-out cheating nature of her fury: Georgia lashed three of the giant pontoon boats—not our little Green River boats—into a triple rig that might even have gone through the Perfect Storm without capsizing.

All our whitewater experience was with Ken Slight of Slight Expeditions in Green River Utah. Ken's idea of an off-season vacation was to go to South America and run rivers, or Alaska and run the Yukon, or to Africa and run God knows what river that He has forsaken. I could write here more of the life, adventures, and loves of Ken Slight, but there are better sources. Read *The Monkey Wrench Gang*. Seldom Seen Smith, the Jack Mormon river runner—who in the opening scenes is driving across Glen Canyon Dam, stops, dismounts his four-wheeler and kneels to pray for a “precision earthquake” here and now—is modeled upon Ken Slight in that novel. I will say only that you needed to be tolerant, loving, and forgiving of a wife, girlfriend, or female boat mate who accompanied you, because Ken excelled as a womanizer. I am reminded of the song “Sheik of Araby”: “At night when you're asleep, into your tent I'll creep.” In this case, the sheik stayed in his own tent after a heavy day of river running, and the ladies did the creeping.

Also during these years we did horse-packing trips with Pete and Jackie Steel's Horse Head Pack Trips in Monticello, Utah. These were up to nine-day horseback excursions through Grand Gulch, Salt Creek Canyon, or Dark Canyon. Actually, Pete had run packs up to thirty days—a defining feature of thirty-day packs is that toward the end the only way you can fry eggs is scrambled. I think I was a customer or a working packer on seven or eight of Pete's trips altogether, but it could have been more. Pete and Jackie would occasionally have only two or three paying customers, not enough for a pack trip, but wanted to build the business. Pete would ask Torrie and me to fill out the group at a discount rate. Eventually, after I

learned the ropes, and he could trust me to roll sourdough biscuits in the flour sack, and bake them in one of the Dutch ovens, Pete would take me along as his packer and cook.

You may not be able to comprehend it, but that was my finest honor, exceeding honorary degrees, promotions, chairs, and the Nobel Award!

Pete was phenomenal. He once spotted a perfect arrowhead from horseback, riding in a pebble-rich creek bed. He unaccountably stopped, dismounted, bent over, looked at a sea of jumbled pebbles, picked something up, and showed us a fine piece of craftsmanship in flint, jasper, or onyx. For Pete's trained eye, the craftsmanship and symmetry in that artifact allowed it to stand out boldly in a pebble-strewn landscape. He knew where the remote ruins were located and where you could see all the finest rock art. He is a can-do master in the spirit of McClure Stilly, the Kansas quarryman.



The BLM had no idea at the time where all these artistic treasures were to be found. Pete was a Jack Mormon who was the immediate descendent of one of the original eight families in one of Brigham Young's Mormon Missions that settled in the Monticello area. One of the U.S. Park Service brochures touted Angel Arch in Salt Creek as not discovered until the late 1940s. Pete laughed and said, "It's the Park Service that had not discovered it. The Arch was well-known to the cowboys who had run cattle in the region for decades, and who searched for mavericks up Salt Creek." A maverick is a wild calf or cow born of a loose cow in the open range. It's when cowboys are catching mavericks that they wear chaps, spurs, and saddle lassos, not when herding domesticated cattle. Mostly these items are worn for show or for the rodeo (pronounced *ro-dee-o*, not *ro-day-o*), not for maverick piecework. Open-range ranchers give cowboys a share of what is fetched in the market for all mavericks they bring home. But it's

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hard work and requires a good price for beef to make it worth donning those chaps and spurs.



As we rode our horses and led the three pack mules down Grand Gulch—a canyon that eventually empties into the San Juan River, which in turn flows into the Colorado River, but that confluence is now part of Lake Powell—Pete pulled over to the side. We would dismount, tie the horses to trees, and scale the side of the Gulch or hike up a side canyon. Occasionally we would climb to an area with large swimming-pool-size potholes, filled with clear rainwater, and go for a swim. Or, as in Salt Creek, we would hike up to a waterfall and take a shower. But more likely we would climb to a panel of rock art—the Green Mask, the Breech Birth scene, the Arthritic Man, hunting and planting scenes with ducks, Bison, deer, corn, men, women, Kokopelli figures with flutes serenading the women, hand prints, strings of dots, atlatls—spear throwers—and so on. It seems there is no end except what is imposed by civilization—time limits. Returning again and again, even to the same place, always yields new adventures.



The Arthritic Man, as Pete has named it, is a panel with three drawings, left to right in sequence, of what is apparently the same man. In the first he is large, robust with broad shoulders. In the next scene he is shorter, slightly stooped, with slightly swollen knees, and has a cane. In the last he is very stooped, with bulging enlarged knees, hobbling on his cane. Appearing above the figures are skirted women. Pete's representation is that the old man remembered his youth and the dancing girls that he entertained. Then he started to get arthritis, and finally he became very crippled with the disease.

The Breech Birth is high on the left as you go down the Canyon, maybe three or four days into Grand Gulch, where it is wider and deeper. It's a life-size family scene showing a man, woman, and

child. A baby, sitting up, is shown inside the woman, low in her abdominal region. Pete sees the man as the father and the woman as the mother of the child. The woman is pregnant with a baby that has dropped down, ready for birth, whose position suggests that it will be a breech birth.

Once Pete took me up a side canyon and pointed up to a faint petroglyph (a rock-etched representation, not a painted "pictograph," or picture). It was picked out in dark desert-varnished rock, and the sun was flooding out our vision. He suggested, "Climb up to get a closer look, and tell me what you think it is." So I inched my way up to a ledge, where I was able to examine it with less glare. I studied it awhile and finally said, "Pete, it looks to me like a man is copulating with a wolf! They are standing face to face. And here is someone standing next to them who must be waiting for his turn, because he has an erection." Pete says, "Yeah, that's what it has always looked like to me." I have a fairly good color picture of the scene. Pete calls it Anasazi porn.

On one occasion we dismounted and he took me up a narrow side canyon that Pete said he had never explored, having been up it only once. The occasion had been a puma that he sighted ahead of him in the Gulch, which darted into this canyon. He said that he followed it and learned something about pumas' stealth and skill in avoiding humans. The canyon had steep sides, and was not even as wide as a regular two-lane country road, but it was very brushy. He picked his way up a city block or so, and found that it was a dead end with a high, unassailable wall at the end. What happened to the puma? He found its trail, back down and out of the side canyon into Grand Gulch. That cat had slipped by within a few feet of Pete as he was hiking, and he never knew it. Yes, pumas avoid people like the plague. Moreover,

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hikers are safe unless they are stupid enough to do that which is probably impossible—corner one. This time we explored that side canyon without the distraction and anxiety of following a big cat, but we found nothing of interest.



In late summer Grand Gulch was usually pretty dry, but you could always dig for water. You take the folding latrine spade and dig a hole. Down a foot or two the sand is moist; dig a little more, and water seeps into the bottom of the hole. Take one of the drinking cups out of the “kitchen” and dip water out of the hole until you get a couple of the large pots filled. Let it settle and decant (pour off) the clear water on top, leaving a half-inch of dirt and sand in the bottom of the pot. Boil the water vigorously on the open fire and let it cool. It’s delicious, and you prepare enough for cooking and for cowboy coffee in the evening and again in the morning. Sometimes you can just dip it out of puddles in rock depressions, along the canyon floor. It’s great so long as you decant it as you would do with fine wine and boil it thoroughly.



In the spring, Grand Gulch has plenty of water. The horses and mules often wade in it, and you rinse the dishes in it and use the sand to scrub the pots and pans before they go into the hot soapy dishwater. Sometimes there is quicksand. We never happened to encounter any in Grand Gulch, but we did once in Salt Creek.

The side washes that empty into Salt Creek had water in them intermittently on that trip, so the sand bottoms were often still wet. We were approaching a cross wash where it was dry. Pete was first in our usual single-file string of horses and mules, and I was second, Joyce third, Torrie fourth, etc. We had left the mules behind for some side-canyon exploration. Otherwise Pete would lead the mules, and occasionally I would relieve Pete by leading them. Pete

started across the sand wash—no more than ten feet wide—which appeared dry, like many others that we had crossed. His horse reached the center of the sand wash before breaking through into quicksand under a dry crust. Pete's horse sank deep enough to get sand and water into his saddlebag, high across the horse's rump, and ruin a camera. The horse's rump had sand up to a line a foot in front of the tail in back, and to the top of his chest in front. Pete immediately stepped onto the top of the saddle and jumped to the other shore side of the wash, which the horse had almost reached. The rest of us reined up our mounts and did not enter the wash.

I dismounted and crossed the wash only a few feet above the quicksand, where it was solid. I looked for a long branch. Pete had at some point already instructed me that a stick pushed up and down in the quicksand around an animal would settle the sand and enable an escape. But we did not need it. The struggling horse settled the quicksand himself, regained his footing, and walked out.

Here is the physics of it: This quicksand is an emulsion of water, sand, and dirt that has dried superficially on top first and formed a crust that looks solid, just like any other dry or moist sand pile. (I can't speak for the quicksand in *Indiana Jones*, but I suspect that it is either very different physics, or just so much Hollywood baloney, like the quicksand in the old Tarzan movies.) If you break through it and slosh around, or push a stick up and down in it, the sand starts to settle to the bottom and the water starts to flow out if it's on a downhill slope. When we rode away from the anomaly in the middle of that wash, water was flowing out of it as if it was coming from a small underground creek. That country is full of underground creeks flowing out of a ledge in the ground. The most spectacular is Thunder River in

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Grand Canyon, which does indeed thunder out of a hole in the ground above the river—an easy hike up from the riverbank.

Pete said that in Grand Gulch he was once leading the mules and was well across a large quicksand area before he broke through. He and the horse got out, but the mules were bogged down with their heavy packs and could hardly move. He had to remove each of their packs from the top—quite a chore, as packs are lashed on, and taken off, from the bottom of the mule's belly.



Mules are the best of the animal side of a pack trip. They are reliable, dedicated, unflappable on steep-sided narrow trails, very smart, and comedians to boot. This last characteristic shades over into being playful after a long day under a pack, and their unique personalities are to be enjoyed, like those of Torrie's and Jim's goats in Colorado. Pete had several mules and a packhorse, but my three favorites were the mules: Enid, Jane, and Enos. Jane was a beautiful red, gentle and lovable. Enid was a kitchen specialist. Enos was a comedian par excellence.

The "kitchen" consisted of two rectangular boxes no more than about three feet high and two and half wide with a sloping top panel hinged at the bottom that Pete fabricated out of strong, but not too heavy plywood. The boxes contained spices, pans, utensils, knives, peanut butter, jelly, canned tuna and chicken, pickles, and bread (for lunch, no fire or biscuits, but I always tried to make enough for breakfast to have some left over for lunch so that I did not have to eat any of Pete's store-bought Wonder Bread). When we unloaded the kitchen in the evening, we set each box down next to where the campfire would be, opened the diagonal top of each, and rested them on stakes. That gave us two small tables—very handy in the wilds of Utah. Enid would carry the kitchen boxes—one on each side—and come to a tree on his right and a boulder just beyond on his left. He knew to dip his right shoulder and get the right kitchen around the tree, then zig to the right and dip the left side to get that box around the boulder. All those mules were cool on a high narrow trail, with a

deep canyon on one side. The trail narrowed further and went around a corner with snags for the packs on the cliff side—no sweat, as the mules sashayed around the obstacles, unspookable servants of their adventurous packers. After a long day, packs removed, they rolled over on their backs, all four hooves in the air, and wiggle-scratched their backs. Then they got up, shook, and ran around like dogs. Pete would lie crossways on Enos's bare back, reach both hands down on the other side, and scratch his belly. That mule would stretch his neck way out, close his eyes, and just soak up the pleasure of it all.

Once, Hugo Sonnenschein, Rich Kihlstrom, and Lenny Merman, with wives and assorted children, visited us in Monticello. "Are you up for a horseback ride?" "Yes!" So I called Pete and set up a time for us all to meet him and a truckload of horses on the slope of the Abajo Mountains up the road just out of Monticello. It would be the next day at 1 p.m. We all piled into our cars and drove the two miles up to the meeting point on the slope. We waited, but there was no Pete. Finally, at about 1:45 p.m., I drove back down the mountain to the first phone booth and called. Jackie answered the phone. I said, "Where's Pete? I thought he was coming at 1 p.m." Jackie says, "When Pete says 1 p.m., that means he will go to look for the horses at 1.p.m. When he finds them and loads them he will be up." So Pete showed up in the truck about 2:15 p.m. Pete, like many in the Southwest, is on IPT, that's Indian People's Time. Those of us on WPT—White People's Time—have trouble getting used to IPT, but it is actually wonderful once you get used to it. I think of IPT as Time and the River Flowing. You must be on IPT on all whitewater trips; if you are not, you have no business being there, but in spite of yourself you will soon get into IPT. It's also IPT on all pack trips. The only times I do not take "homework" with me on outings are whitewater and horseback trips. These are full-time attention escapes. In both cases, the schedule is controlled largely by nature. It is a different and very satisfying world, particularly for people like me whose brains are always busy offline, but who learn to adjust to external reality on a long pack or river run where my brain is still busy offline. After returning from one of these great escapes, I really write up a storm as the buildup in my offline brain inventory dumps its contents into my eagerly waiting mind and pen.



According to Joseph Kahn's "China Moves to Protect Property, But the Fine Print Has a Caveat," in the *New York Times* (December 23, 2003, p 1): "China's national legislature moved to amend the Constitution on Monday to protect private property rights, the first time the Communist Party has formally protected private wealth since taking power 55 years ago. The change . . . marks a victory for China's emerging class of entrepreneurs, who have argued for years that the Marxist Constitution discriminates against them and gives leeway to the police and the courts to seize their property according to party dictates. . . . Corruption is rampant in China. . . . Local and national authorities often confiscate land and money of people they consider threatening or disobedient, generally arguing that they lost their rights because they violated a law or regulation while accumulating their property."

This problem in China is an issue everywhere, even where we have the benefits of "the rule of law" and the protections of private property: In the best of governments, control by government agents of the access rights to resources of various kinds endows these agents with power over the rights holders. That control can easily be, and often is, exercised capriciously and arbitrarily by local agents far below the radar screens of upper managers in Washington. Pete Steel had a run-in with the Bureau of Land Management that provides a real live down-to-earth example. Here are the circumstances.

Pete owned a small ranch in Utah and held BLM grazing permits to a thousand odd acres of BLM land adjoining his ranch—the standard Western grazing set up. (The old Green Water ranch on the road to Hall's Crossing was a private 160-acre home ranch adjoined to 750,000 acres of BLM grazing permits!).

In order to try and make ends meet as a pack guide he conducted pack trips for hunting groups. He always explained that these were not his favorite outdoors groups to serve, but he needed to spread the cost of his liability insurance over as many trips as he could muster. As a hunter who needed the elk meat in his freezer for food, and for sport used a bow and arrows, he had nothing against hunting. He just did not like the macho hunter types that came his way in the pack business. In the events leading up to his run-in with the BLM, he had contracted with some hunters to go up Bridger Mitchell Mesa above Salt Creek.

It is late October. The riders are ascending the trail on horse back with three pack mules, and a light snow starts to fall. "What do you think, Pete?" Pete: "It could stop anytime; we almost never have snow this early." It continues to snow. They get to the top, and it's 6 p.m. and still snowing. "What's the prospect now?" Pete: "It will stop by morning and likely melt by noon." Well, as luck would have it, in the morning it is still snowing. They have to abandon the whole excursion, but it is now too dangerous for the horses to try to bring them down in the snow. Pete stashes all his packing supplies and saddles under tarps, releases the horses, and loads the three mules with the customers' personal belongings. Pete has complete confidence that the mules can negotiate the trail and make it down through the snow. Moreover, horses are survivors in that country and will winter well on the mesa, and he will take the mules up in the spring and bring the horses and all the pack gear down when it is safe. They get down the mesa uneventfully, although as Pete put it, "You ought to have seen Jane skidding stiff-legged down the slope on that snow with ears wagging and tail flying."

All is fine except that later, in the dead of winter, the BLM is doing a routine helicopter flight over

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Bridger, and the pilot spots the horses. “What’s this; wild horses on Bridger Mesa? Wonder how they got there? How could we have not seen them before? Wait, I think I recognize some of Pete Steel’s horses.” To shorten the story, there comes a knock on Pete’s front door. Are those your horses on the mesa? Yes, and Pete tells what happened. Well you gotta get them down. “I can’t do it safely for my horses until spring.” The short of it is that he refuses, and the local bureaucrats are threatening to revoke his grazing permits. There is a standoff, but the situation is saved unintentionally by the famous Wild Horse Annie (Velma B. Johnson), who with good timing makes the headlines over a horse injury event somewhere in the West—Nevada I think. It seems that some horses were injured when some authorities were trying to bring them down a mountain in winter conditions. The local BLM backed off, and after the melt Pete recovered his horses without mishap.



Sadly, Pete was not able to sustain Horse Head Pack Trips. Liability insurance got too expensive for his small, customized operation. Since he could not beat ‘em, he joined ‘em and became a BLM Ranger, stationed first in a trailer at Kane Creek, which is the entry route to Grand Gulch. Jackie was grateful for family medical and retirement benefits for the first time in her life. We are talking here of an endangered species of independent operators who contributed tremendously to what America is all about. Later, Pete was reassigned to Roswell, New Mexico (the UFO capital of the world), and I have not seen him and Jackie for years. He sold some of his horses and mules to Ken Slight, who had long led hiking trips into Comb Wash, Escalante Canyon, and other choice Utah sites.

With Pete’s horses, Ken conducted hiking trips supplied by pack animals. In this way hikers needed only a light day pack and lunch. But Ken, with his rafting legs, and horses were a complete contradiction in terms. If you ask Ken what his mount’s name is, he replies, “Horse.” For Pete the horses and mules were an extension of his

hands, brain, and personality. In Ken's combined hike-pack operation, a packer and the horses would break camp after the hikers left each morning and move to the next overnight rendezvous. We did one horse-pack assisted hike with Ken down Comb Wash to its confluence with the San Juan River. A short hike upriver from the confluence is the location of one of the largest tapestries of rock art that you will find anywhere in the Southwest.

Our children had finished high school by 1972, and I accepted a fellowship at the Center for Advanced Study in the Behavioral Sciences in 1972-73. During this period my research turned to the economics of uncertainty, financial theory of the firm, and natural resource economics, but I continued to think and reflect about experimental economics and to use it in teaching. For me all of it has to do with how things work, which is also what this book is about. This was a significant development in that my brain was continuing to work on experiments, was developing a fresh perspective, and would soon start to report to my mind.

Charles Plott and I talked experiment (for example, the idea of induced valuation) on many bass fishing trips to Lake Powell and to Indiana Lakes in the 1960s. This sparked Charlie's as well as my continuing interest in experiment, and was the link to public choice and the whole field of experimental political economy. Charlie created that field, along with the ingenious input of his colleagues, Mo Fiorina, Mike Levine, and others, but, strangely, I knew nothing of this development until the work was well advanced, and ready to be reported in papers and publications.

At the Center, thanks to the encouragement of the anthropologist Bob Heiser, I wrote my "Pleistocene Extinctions" paper and submitted it to the AER. After a year's delay I received a letter of rejection along with three favorable referee reports. The editor explained that he had been unconvinced by the first two and had sought a third report, but was still not convinced. He said that in a way it was ingenious to interpret the prehistory of humans in terms of a common property resource model of hunting, but that once you had said it, there was nothing left to say! That can be said about all published papers, but most professionals are interested in how the argument and theory are developed and are related to evidence. A

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good abstract is enough for browsers. The bottom line was that the basis for his rejection was not assailable, since he was the editor and could reject it for any reason he wished. I sent the article to George Stigler at the JPE (1975), along with the AER rejection letter and the three reports; he sent it to one referee, and it was accepted and published in a few weeks.

I also finished some generalizations of work in corporate finance that I had come to think of as the non-theorem of Modigliani and Miller. This literature is an incredible story of an idea that had some merit, and was probably an academic exercise worth exploring. The idea led to a false result, however, whose assumptions were not supportable within the framework used to get the result, but nonetheless became enthroned in the literature. Widely influential for many years, it died a natural death, displaced by the new wave of excitement over rational expectations theory, also widely influential and dying a very slow death indeed.

While at the Center I continued to be in touch with Charlie Plott, who wanted me to join him in a Caltech effort in experimental economics. He engineered a Caltech offer for me to come for a Sherman Fairchild Distinguished Scholar position for one year, which provided the vehicle for us to offer a seminar for student credit in the spring quarter of 1974. I updated my old outline and notes from teaching experimental economics at Purdue from 1963 to 1967, and we had regular meetings attended by three paying customers (including an undergraduate, Ross Miller) and several faculty members, including Mo Fiorina, John Ferjohn, Roger Noll, Jim Quirk, Lance Davis, and Bill Riker, also a visiting Fairchild scholar from Rochester. Bill had done some political science game theory experiments, and we were off and running. Later Bill reported that he had agreed to write a paper for an editor on experimental methods in political science, but after the course he reversed his decision, because the seminar had completely changed his thinking about experiments and he wanted to reflect more on the subject. I think that story summarizes well the intellectual ferment produced that semester. Afterward, at Caltech, experiments, including the new experimental political economy, would be central to the teaching and research program.

I talked from my old Purdue lecture notes, including the theory of induced valuation, and developed many new notes in our Caltech seminar in 1974. While I was still at the Center, Charlie had pointed out to me that these ideas—induced valuation—were catching hold and he and others needed something to cite. I remember at the time thinking that it should be no problem, as Charlie could always just cite correspondence or personal communication, but at that time I did not know that Charlie had a whole research program underway on voting and public goods, which is why he needed something to cite. I responded by including those notes in a methods write-up in the Caltech working paper series. I wrote a draft of that paper while still at the Center. At Caltech I wrote a short summary paper based on induced valuation and included some data on the effect of incentives, and of excess supply on convergence, cribbed from my 1965 JPE paper for the AER (1976).

The induced-value ideas were finally published a dozen years after their original articulation and development. The Nobel citation implicitly depended on that paper, but I might easily have gone without publishing it. In fact, it appeared in the (non-refereed) AER Proceedings as my invited presentation at the annual meetings. So its publication was a serendipitous afterthought. It was old hat ten years plus after the synergies that gave rise to it, and I cannot imagine any referees of the day seeing its significance. To any theorist it was trivial, just an observation pointing out the application of the theorem that utilitarian preferences were invariant under a monotone strictly increasing transformation of the utility scale. Hence, I would not likely have had the commitment to fight it through a resistant editor and refereeing process. No referee could appreciate that it was the elementary stuff that was changing the way we thought about economics in the laboratory. You cannot convey that in a paper, only in an entire research program.

Charlie's advice was good on that paper as I was not reliable in such matters. It was the work and the mind-shift underway that had absorbed me more than when and where to publish a piece that would develop the importance of using money to induce value on abstract items as a means of controlling supply and demand, incentives in general and for motivating choice in game theoretic

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studies in the laboratory. Besides, it was a note really, not a paper, and even today few economists understand its true significance. I never really acquired the habit of keeping my ear to the rail—I still think its importance is exaggerated. Self-absorption for me in its strategic manifestation is too costly and distracting. If I don't keep my eye on the ball I will fumble. I think of ideas as being a dime a dozen, and there always seem to be so many more. What is more important is the development and implementation of the idea in a way that enables you to learn from observation. This is particularly true once you have a concept-generating engine and technology like experimental economics, but more generally it flows naturally out of a curiosity about how things work. Eventually, priority on any one is not the central issue that it may seem to be at the time, or in retrospect. I have always believed that what is important, and will come to be seen, is what accumulates. For me McClure Stillely stated well the ultimate motivation for doing anything.

Except for finishing and publishing a few loose ends in resource economics, I was back into experimental research full time, and, as I started to learn while at Caltech from 1973 to 1975, Charlie, Mo Fiorina—later Roger Noll and John Ferjohn—and others were in the process of creating experimental public choice, although I did not know the details until they appeared in working papers. That is when I discovered the significance of the earlier discussions that Charlie and I had on fishing trips during the 1960s, particularly his intense interest in the concept of induced valuation illustrated in the pictures I drew in the sand. On a trip to Lake Powell in 1972 we were going over it, and he asked if the objects on the x and y axes could be public goods, and of course, I replied that they could be anything—public or private goods—on which one wanted to induce preferences. It was the elementary stuff that enabled a change in the way we thought about economics, and, it would become clear, Charlie saw its depth and breadth immediately. This is to his everlasting credit, as I had been talking about it in seminars and teaching it in my Purdue graduate course during the years 1963 to 1968, but it had not yet had the impact on other economists thinking that it had had on mine. In his collected papers published in 2001 Charlie wrote that he was so excited about it all that he had the design for

the first public economics experiments mostly worked out by the time he returned to Caltech where he would be working with Mo Fiorina.

I stayed on in 1974-75 with a joint appointment at Caltech and USC, and we wrote up our experiments for Miller, Plott, and Smith (*Quarterly Journal of Economics*, 1977). This was surely one of the first experimental papers in economics with an undergraduate co-author, but Ross was a meaningful contributor and in fact wrote a preliminary draft for course credit. So I put his name on the first draft I wrote for our joint paper, and Charlie went along with it. Subsequently I wrote a paper with two undergraduates at Arizona (Coppinger and Titus) that won a Best Paper Award—it was good policy.

Charlie and I wrote our paper on comparing institutions, later published in the *Review of Economic Studies* (1978), and in 1974-75 I started the experiments that would lead to a series of papers testing the incentive properties of various public good mechanisms (1977-1984). I published the unanimity auction mechanism for public goods in 1977 (*Journal of Political Economy*) and compared the Lindahl free rider mechanism with Groves-Ledyard in 1979 (*Experimental Research in Economics*). Using Lindahl for the control was methodologically essential. Before you evaluate an incentive mechanism you have to first establish that there is a free rider behavioral problem that requires an incentive solution in the first place. By then I was at Arizona where I finished the work I had started there on alternative public good mechanisms.

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*1974 Carol, Vernon, Space needle photo coin booth.*



*1970s Pete Steel giving his interpretation of pictographs on a Grand Gulch pack trip.*



*Chapter 13*  
**Arizona and E-  
Commerce in the Lab**

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Holmes and Watson go on a camping trip. After dinner and a good bottle of wine they retire for the night and go to sleep. Some hours later Holmes awakens, startled, and nudges his faithful friend. “Watson, look up and tell me what you see.” “I see billions of stars, Holmes,” replies Watson.

“And what do you deduce from that?”

Watson ponders for a moment, and says, “Well, astronomically it tells me that there are millions of galaxies and potentially billions of planets. Astrologically, I observe that Saturn is in Leo. Horologically, I deduce that the time is approximately a quarter past three. Meteorologically, I suspect that we will have a beautiful day tomorrow. Theologically, I can see that God is all powerful, and that we are a small and insignificant part of the universe. What does it tell you, Holmes?”

Holmes is silent for a moment.

“Watson, you idiot! It tells me that someone has stolen our tent.”

By this time in my professional life I had realized the importance of tempering all my technical and analytical learning in economics with everyday common sense based on observation. I had learned to take seriously the actions of subjects in experiments. I should note that the “subjects” were not only students; early on I had replicated our standard experiments using business persons. They startled me with their accomplishments although they had no sophisticated sense of what that might be because they had not the information

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or the eyes for contemplating the whole. (Gradually I came to see that this was equally true of the profession, with an early exception like Charlie, who got it loud and clear in spades from the beginning, followed by a very small handful of scattered souls whose numbers slowly increased.) When the subjects seemed to produce a result that was “wrong,” something in me had learned to withhold judgment in terms of standard theoretical predictions and expectations. When puzzled by replicable data I had started naturally to think outside the conventional box, and to try to keep my brainwashed and conventionally educated cortex from carrying the day. Understand, I still had (and have) a great distance to go, but I was starting to ask, “What are the subjects trying to tell us about the world as they see it?” (Herb Simon shared this perspective, but the cognitive psychologists, and behavioral economists, tended to have the same perspective of the economics profession: When subjects got it “wrong,” they were being “irrational,” and we should not question the theory or our interpretation of it.) But the subjects did not have the worldview that the economics profession had, and I had already learned from my subjects that our professional understanding of market dynamics and microstructure was severely deficient: The subjects had it right. Clearly, we knew little of how economic actors functioned in the world, and however that understanding was to develop, it had to take seriously the actions of the participants who drove it, myopic as they might be.

Some famous and very accomplished economists have the commonsense abilities to think outside the box and to observe carefully and thoughtfully the world about them. (If Holmes had asked, “What do you see?” they would not likely have given Watson’s answer.) Some of them are even Nobel Prize winners. Tom Schelling, who finally received the award in 2005, gets as much mileage out of common sense as anyone. Ronald Coase, a careful commonsense observer, achieved the Nobel with essentially two blockbuster papers out of a total of half a dozen. Herb Simon never allowed his technical depth to override his common sense. There are more, such as Adam Smith in the eighteenth and Frederick Bastiat—who is usually dismissed as “only a journalist”—in the nineteenth century, and one of the best of them all, F. A. Hayek in the twentieth.

I considered staying on at Caltech or going to Northwestern, where I had many close and longstanding friends like John Hughes and Stan Reiter and former students like Mort Kamien and Nancy Schwartz, but I feared the tug of a silver umbilical cord at Northwestern and the thought that maybe you can't go home again. Caltech was a pressure cooker. When I cook I like to marinate all the ingredients of the product, and I don't like strategizing environments: I don't want to have to think about covering my rear flank or editing my conversations. Also Carol Breckner, who would become my wife, was not in favor of going to Northwestern, where I would be returning to an earlier fold of familiar friends and colleagues and where she was a stranger. Arizona would be a good place to start over together. More than anything, I was looking for new opportunity; I could not describe it, but I thought I would know it when I saw it. I did not see it at Caltech or at Northwestern in 1975, any more than I had seen it at the Harvard Business School in 1955.

Then, in 1974, I gave a seminar at the University of Arizona. Rene Manes, a student from Purdue days, was dean of the College of Business and was interested in bringing me to Arizona. Intrigued, I returned in 1975 to give another seminar, visited with the administration, and sensed that this was what I was looking for. They had had some recruiting successes, but had much work ahead in building the faculty. Most impressive, however, was a committed top administration: John Schafer, president; Gary Munsinger, vice president, and Al Weaver, a tough-minded no-nonsense provost whom I really liked. Actually, I liked the very things that many people hated about him. These people all had good values and were entrepreneurial, which were not exactly commonplace characteristics of university administrators, so my interest was sparked.

Em, as I have noted, once said that his first year as dean of the new Industrial Management School was the most difficult year of his life, but he had one supporter, President Hovde, and if you get to have only one supporter you want it to be the president. As it turned out, at Arizona our program would have many other supporters who would sustain us for nearly two decades before the delicate and rarely blooming flower of university entrepreneurship would succumb

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to the inevitable. At Purdue we had built castles in the cornfields; maybe in Arizona we could build them among the saguaro.

There was another fact to take into account: I was already falling in love with Arizona and the university. I stayed at the Westward Look and could hear the coyotes at night. I sat in the bar and could look out to the South (this was before renovation ruined the view from the bar), the city lights stretched below me, and it just felt good. It led to about twenty great years of innovation and growth in experimental economics before administrative mediocrity and a typical faculty skirmish flooded all the most recently planted crops. But nothing is forever, and if you are successful you are a prominent target. Only he who does nothing will never be shot at.

### *Some Early Intellectual History*

Carol and I decided to move to Tucson, arriving in the August summer heat, the monsoon lightning, and the gully washers of 1975. In retrospect that was a good decision—good beyond my fondest hopes. I was there for twenty-six years before leaving for George Mason University in July 2001. That is a long and exciting story that continued the basic work begun at Purdue, which is where it all started for me, and which formed the primary citation by the Nobel Foundation. The story of our departure begs to be told, and now is the time to do it. But this is not the place to tell it. The full story is not only about the heights and depths that the human spirit can reach, but also about the long-term value as well as lessons that can be created out of that volatility. My focus here will be on the heights. The depths might depress you, but they are reported in records deposited with all my correspondence and papers in the Duke University library archives in my name.

The foundation-building years were 1975 to 1985. In the first several of those years, I had a number of key undergraduate and graduate students in experimental economics classes who were instrumental in developing and implementing a vision of computerizing the protocols for running a great range of experiments that we had underway. These students deserve full credit for creating

Arizona's methodological revolution in experimental economics: Arlington Williams (economics), Mike Vannoni (engineering), Stephen Rassenti (systems engineering), Vickie (Sandler) Coppinger (economics), and Jon Titus (economics). Then the list expanded to include Jonathan Ketcham, Bruce Roberson, Don Coursey (all in economics), and many others who followed.

The curriculum mechanism for developing this program within the university bureaucracy was to offer an undergraduate and graduate course in experimental economics. At first the two courses were combined into one. As in most universities, there was a complicated committee process for getting approval for new courses. Questions naturally arise when you want to teach any course in a subject that is not recognizable as part of most of the faculty's training when they were in graduate school twenty-five years earlier. I used these two courses to introduce students to the literature of experimental economics, but I gave them no examinations on their comprehension of the readings.

I did not administer a course examination for twenty-five years. We used the examination period scheduled at the end of each semester for completing our discussion and presentations. I think this may have been in technical violation of a university rule requiring all courses to have a final examination, but such rules are never enforced so normally they cut no mustard. More significant, administrative decrees like this are based on a false premise. Education is not about knowing things. It's about discovering and implementing what you can do with what you know. It's about learning to learn. In place of exams, we all made presentations, and each student was to propose an experimental study. We concentrated heavily on what was to be done and then doing it; on learning by doing; on learning new skills and tools, but as part of solving a problem that required one to learn or utilize whatever skills were needed. Just as competition in the economy is a discovery procedure, so is education. Both are education processes.



Albert Einstein was famously skeptical of the conventional approaches common in university education at the end of the nineteenth century. Thus,

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early in his university education he found that in the study of physics he had learned to “scent out that which was able to lead to fundamentals and to turn aside from everything else, from the multitude of things that clutter up the mind and divert it from the essential. The hitch in all this was, of course, the fact that one had to cram all this stuff into one’s mind for the examinations, whether one liked it or not.” But he notes: “in Switzerland we had to suffer far less under such coercion, which smothers every truly scientific impulse, than is the case in many another locality. There were altogether only two examinations; aside from these, one could just about do as one pleased. This was especially the case if one had a friend, as did I, who attended the lectures regularly and worked over their content conscientiously. This gave one freedom in the choice of pursuits until a few months before the examination, a freedom which I enjoyed to a great extent and have gladly taken into the bargain the bad conscience as by far the lesser evil. It is, in fact, nothing short of a miracle that the modern methods of instruction have not yet entirely strangled the holy curiosity of enquiry; for this delicate little plant, aside from stimulation, stands mainly in need of freedom; without this it goes to wreck and ruin without fail. It is a very grave mistake to think that the enjoyment of seeing and searching can be promoted by means of coercion and a sense of duty.” From *Albert Einstein: Philosopher-Scientist*, ed. P. A. Schilpp, LaSalle, Ill.: Open Court Publishing, 1949.



Several students over these years really got into the exercise and defined projects that required more than a three-credit course investment. I enrolled them in one or two additional special-studies courses to enable them to complete their projects. Some learned computer programming in order to complete a research program.

Arlington Williams was the pioneer. In 1975 Arlie undertook to write the first electronic version of the continuous double auction (Double auction, or DA, is a real-time bid/ask/contacting procedure like the one I had used first in January 1956.) It was tested in the summer of 1976. We ran twelve experiments using designs that were identical to those we had also used in oral DAs. Arlie wrote up the comparisons showing that the oral DA produced equilibrium more rapidly than the electronic version with inexperienced subjects, but that there was no discernible difference for once-experienced subjects.

The brain learns to function in this market task more rapidly by processing oral input and responding orally than by utilizing visual input followed by written trading responses. The cost of transacting is higher in the latter than in the former. But once those communication passages are practiced and become autonomic, the behavior is the same. By this time Arlie—who was learning by doing—knew a tremendous amount of programming (the Tutor language) for the Plato system. He did exactly what the slovenly would never do: He just started over and rapidly produced a more streamlined piece of software.

The new program developed four versions of the bid/ask trading process, allowing us to learn much about the anatomy of the DA rules. Of course, this was not the first time for computerized experiments. Austin Hoggatt had run oligopoly experiments using posted price-quantity mechanisms going back to the 1960s. But this time it was based on continuous time trading, and it was a sustained effort motivated by trading methods in practice, not only toy bid mechanisms motivated by academic theory.

We were doing e-commerce in the lab, but we did not know that was what we were supposed to call it until it had been reinvented much later on the Internet.

Mike Vannoni was also a front-runner and at about the same time as Arlie was into using Plato for sealed-bid, two-sided trading mechanisms. Vicki Coppinger (nee Sandler), Jon Titus, and I ran manual experiments comparing the English, Dutch, Sealed Bid First and Second Price auctions, and Vicki followed up with a Plato version of the sealed-bid auctions. This was the first of several papers

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that I would write with undergraduates at Arizona. They deserved more than a footnote at the bottom of the title page of the article that resulted.

I submitted the Coppinger, Smith, and Titus piece to the *Journal of Political Economy*, where it was accepted subject to the condition that it be drastically shortened. Since I did not want to shorten it for the editor, Sam Peltzman, we sent it to Bob Clower, editor of *Economic Inquiry*, where it appeared in full. It was a good decision: We won a best-article award for that paper from the journal.

I worked for several months with Jonathan Ketcham to develop a smoothly functioning, rich, multifaceted version of the posted offer (PO) market mechanism, leading to a comparison between DA and PO by Jonathan, Arlie, and me. We published it in the *Review of Economic Studies* (1984).

Mike also developed Plato versions of various public good mechanisms that I had begun studying earlier at Caltech. The principal study using this software was published in the *American Economic Review* (1980). This was followed up by Don Coursey, who wrote a more comprehensive program for studying private, public, and externality-good decision mechanisms.

When we went electronic and started to do computer-assisted experiments in economics in 1975, we thought we were making it easier to run the kind of experiments that we had been running for years and to record the observations more easily and accurately. But we soon found that computerization changed our experience, and that gradually changed the way we thought about experiments. We were transformed without consciously planning it. That is a fundamental truth about how norms and institutions emerge, and why they are so far beneath our conscious awareness. What we learned experientially when we became computerized was that we could conduct much more complex experiments and process data from much larger message spaces. We were soon running experiments that we would never have dreamed of running theretofore. In particular, a central processor could apply optimization, coordination, and scheduling algorithms to the willingness-to-pay and willingness-to-receive messages of decentralized agents with dispersed information.

With Stephen Rassenti—skilled in developing optimization algorithms—this enabled us to develop a whole new approach to using the lab to test-bed new market designs and person-machine decision systems. From the beginning it had the potential to replace ponderous, inefficient, command-and-control regulatory systems with self-ordering, self-regulating systems. Complex markets could be coordinated with support system designs that simplified individual decision operations. Individuals supplied willingness-to-pay and willingness-to-receive valuations based on local knowledge, judgments, and conditions, and algorithms assured that each could do no better for himself against the constraints expressed by all others.

The test-bed idea has emerged from the confluence of the work of many, and claims about who was first and how it all developed require deep scholarship in the history of economic ideas. Asking those of us who actually helped make the history to write about it may be of value, but it's a little like asking the coyote who should guard the chicken coop. Test bedding just emerged naturally out of what many of us had been doing and the challenge from the very beginning provided by incentive issues in ongoing markets in the world.

Looking backward, with the proverbial 20/20 hindsight, my experiments from 1965 to 1967, motivated by the Treasury bill auctions, comparing competitive and discriminative auctions (*Journal of Business*, 1967), were a part of what we later called test bedding, borrowed from the long-established engineering term. Of course, no one at that time had the understanding we now have from hindsight.

The Treasury problem was identified by Milton Friedman in about 1951. He recommended uniform competitive price clearing. But Friedman was wrong in speculating that there must surely be collusion in the T-bill auction then organized so that a winning bidder paid whatever he bid. The narrow spread Milton pointed to was shown by the experiments to be a property of the incentives inherent in the rule that each accepted bid paid the amount of the bid. The rules gave the bidders a common incentive to estimate where the lowest accepted bid was likely to be and bid slightly above it. The

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rules induced the behavior endogenously. With everyone behaving in this manner, you observe naturally and spontaneously a narrow spread. You did not need an exogenous story, spun out of the whole cloth of suspicion, about bidders colluding.

It's amazing how observing such phenomena subtly affects your thinking, experiment by experiment, until you start to sound like a visitor from Mars to economists who have not benefited from that exposure. Also, it explains why you might finally quit talking about "market power" as the knee-jerk default explanation of anything and everything you do not understand.

The relevant theory in the Treasury auction case had been published in 1961 by Bill Vickrey, who showed that in general each bidder should pay the opportunity cost his bid imposed on others. Unfortunately, I did not know of nor had I or others read and benefited from Vickrey's great theoretical paper until years later. Essentially, it was ahead of its time, people were not ready for it, and its full implications for auctions had not been worked out.

In the winter of 1968-69, Henry Wallich (a Treasury consultant at that time; he was later to be appointed to the Federal Reserve board) called me one night at home in Massachusetts about my Treasury bill experimental paper, and in the course of the discussion, requested reprints of that paper to help him persuade the Treasury to get off its duff and run field experiments comparing the two auctions.

Henry had long agitated, as he put it, at Treasury for this field test, but he wanted to make a new attempt, armed with more than Milton Friedman's arguments. This led to discussions with Secretary of the Treasury George Schultz, which a few years later led to sixteen bond auctions—ten uniform price competitive (incorrectly called "Dutch") auctions and six discriminative auctions—all conducted in the early to mid-1970s. Henry Wallich later confirmed in correspondence with me that the lab experiments had played a helpful role in causing this change in attitude. The final outcome was that Treasury eventually—more than a dozen or so years later, after much internal controversy—was persuaded to change its auction system for all bond maturities, not just short maturity bills and notes.

This was a good example of a substantive change in policy that was assisted by lab and field experiments. But *many* were involved:

Friedman, Schultz, Wallich; me and my experiments; a Purdue thesis by Meyer Belovicz that greatly extended my *Journal of Business* results; Che Tsao and Tony Vignola at Treasury and the Federal Reserve who analyzed the field data and the laboratory data, concluding that both pointed to the need for a change in policy. This was the genesis over a forty-five-year period of a major Treasury policy change in the 1990s.



People continue to make the mistake of believing that one side or the other in a market is advantaged when the other side is required to pay the amounts specified in its price bids, rather than a uniform clearing price. The error reared its head in electricity markets in California and as far away as Britain. Some officials thought that that was what accounts for the high wholesale prices in California and elsewhere when supplies are tight. It does not. Experiments with controlled generator costs bidding to supply a market demonstrate that this is false. In these markets generator bids are accepted up to the highest priced generator, and all generators are paid at that highest price. Intuitively it looks like buyers are leaving money on the table, because most of the generator bids are below the highest and you are giving them the difference; and it looks like it can be fixed by paying each accepted generator bid a price equal to the bid. But if you do, it changes the incentives of the bidders. You have given them a common incentive to raise their bids, and that is exactly what they do. You would find yourself doing it if you were bidding under the discriminative rules. You would not be aware of it because you would not experience what would happen under the alternative uniform price rules. As noted so perceptively by Hayek, the proper focus of social science studies is *the study of what is not*. To understand what is, you need to also understand what is not—what things would be like

under alternative arrangements besides those we have experience with.

Milton Friedman and a host of people since have thought the observed behavior was due to collusion or market power—something sinister and evil. It's not; it's in the rules and the incentives, Virginia. Our experimental colleagues, Robert Thomas and his co-authors at Cornell, got wind of a movement by a regional Independent System Operator (ISO) to change over to an "as bid" generator market. They went to the ISO and put the officials and staff through two experiments: one with uniform pricing, the other with "as bid" discriminative pricing. The group succumbed to the differential incentives as would anyone, and that, said the cat, was that. I and my colleagues have a paper showing the same results (S. Rassenti, V. Smith and B. Wilson, "Discriminatory Price Auctions in Electricity Markets: Low Volatility at the Expense of High Price Levels," *Journal of Regulatory Economics* 23, no. 2, 2003). These behavioral results are just a seller's auction version of the buyer Treasury bill auction I studied back in the 1960s. It was not actually "settled" then, as a principle, and it keeps rising from the dead.

Some theorists believe that revenue will be the same in uniform and discriminative price auctions because of the "Revenue Equivalence Theorem. But that theorem is for a single isolated auction exchange, not for repeated auctions across time, and this makes a big difference.



From this 1960s beginning, my thoughts gradually evolved and were influenced by literature and ideas from many others, especially Charles Plott and his co-authors in the late 1970s and into the 1980s. There was a continuous transformation of our thinking as we became more experienced with a great variety of different experimental and

institutional contexts, and the community of scholars participating in that process was growing rapidly.

But the biggest impact on my thinking came in my joint work with Stephen Rassenti, beginning in the 1970s on smart computer assisted markets and culminating in his 1981 thesis “0-1 Allocation Problems: Algorithms and Applications.” E-commerce in the lab beginning in 1975 changed the way we thought about market design and test bedding. It was now possible to combine the information advantages of decentralized decision—for example bidding—with the coordination advantages of central processing of messages to achieve more efficient outcomes. In the Isaac, Grether, and Plott proposal for independently auctioning slots, with an aftermarket for people to fill in the missed bidder combination packages, we saw a way of doing it in one primary computer-assisted auction. This exercised generalized to the concept of “smart” computer-assisted markets. Some thought the politicians would never buy it, but we could not have cared less because our constituency didn’t consist of politicians. Stephen, I, and later co-authors—Kevin McCabe, David Porter, Mark Olson, Jim Murphy, Jeff Banks, Bart Wilson, and others—would apply these principles to gas pipeline, water, and electrical networks; to scheduling; and to the FCC spectrum auctions. In these applications, particularly electricity and the spectrum, you can avoid “smarts,” but only at your, and particularly the FCC’s, peril.



Here is how we expressed it in our 1982 paper (S. Rassenti, V.L. Smith and R. Bulfin), “A Combinatorial Auction Mechanism . . .,” *Bell Journal of Economics*, 1982, p. 62: To our knowledge, this study constitutes the first attempt to design a “smart” computer-assisted exchange institution. In all the computer-assisted markets known to us in the field, as well as those studied in laboratory experiments, the computer passively records bids and contracts and routinely enforces the trading rules of the institution. The RSB mechanism has potential application to any market in which commodities are composed of combinations of elemental items (or characteristics). The

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distinguishing feature of our combinatorial auction is that it allows consumers to define the commodity by means of the bids tendered for alternative packages of elemental items. It eliminates the necessity for producers to anticipate, perhaps at substantial risk and cost, the commodity packages valued most highly in the market. . . . The experimental results suggest that: (a) the procedures of the mechanism are operational, i.e., motivated individuals can execute the required task with a minimum of instruction and training; (b) the extent of demand under revelation by participants is not large, i.e., allocative efficiencies of 98-99% of the possible surplus seem to be achievable over time with experienced bidders. This occurred despite repeated early attempts by inexperienced subjects to manipulate the mechanism and to engage in speculative purchases.



Hence, beginning in the period 1976 to 1980, test bedding became an integral part of a much larger program in economic system design, including the developing of the Smart Computer Assisted Market. The rapid advance in computer and communication technology seemed to me to make this development a slam dunk.

It would take a while, however, for other experimentalists to pick up on the advantages of the computer-human interface, e.g., at Caltech, where in the 1980s Charlie commissioned MUDAs (multiple unit double auctions). This was a first-class double auction software program; you needed only to add written instructions to the code. Charlie supplemented with written and oral instructions, whereas our tradition was to include instructions directly in computer-screen presentation. At first the reaction of experimentalists had been that “programming for experiments is a black hole for throwing money into,” as indeed it was, but as we learned to surmount the challenges it paid off. Every advance always built on the experience of others—there was no need to repeat what turned out after the fact to be earlier shortcomings. Arlie found that out in 1976 and started over, reprogramming his Plato double auction software.

New technologies always fostered enormous resistance from the status quo alternatives. We saw this resistance to the computerized trading of securities, derivatives, and currencies beginning in the 1960s. After thirty years it had started to make inroads, the Internet has begun taking over, and trading is more and more making use of Smart Computer Assisted strategies. That resistance is likely to continue to be eroded in all exchange systems.

The experimental program at Arizona, particularly its e-commerce version, was operating at full speed by the early 1980s. Based on my earlier work on the Treasury bill auctions and the new experiments on single object auctions with John Titus and Vicki Coppinger, I had received an NSF grant to extend the experimental study of auctions. Bruce Roberson had developed the Plato software to do more rigorous computerized experiments comparing Dutch and First and Second Price sealed bid auctions for single objects. Jim Cox had joined the Arizona faculty from the University of Massachusetts, and asked if he could join me on the NSF project. I agreed. He and I worked on the theory, building on the innovations of Bill Vickery. John Ledyard had derived an extension of the Vickrey risk-neutral Nash equilibrium bid function for constant relative risk-averse agents. But there was an error in the derivation, pointed out thanks to the alert help of Dave Porter, then a graduate student at U of A. Meanwhile, Bruce finished his Plato program and we started running experiments.

Jimmie Walker, who came to the U of A after finishing his Ph.D. at Texas A & M University, started to work on multiple-unit Plato versions of the uniform and discriminative auctions for experiments. Jimmie played a central role in all our subsequent studies of bidding behavior in auctions for single and multiple units with varying numbers of bidders. Lack of vision resulted in our inability to retain him. The U of A's big loss was an even bigger gain by Indiana University, where he took root in a fertile environment of political economy research with Elinor Ostrom.

I was able to extend the derivation of the bid function to multiple units—one for each agent—in discriminative auctions with a uniform distribution of values, and Jim Cox came up with a derivation of equilibrium bid functions for the general class of log concave utility

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functions. This led to a series of papers developing the theory and conducting experimental tests of single and multiple unit auctions.

Mark Isaac had also come to the U of A after completing his Ph.D. at Caltech, and he and I collaborated on several papers dealing with industrial organization and antitrust issues.

Parallel with all these intellectual activities, from 1975 to 1985, I was deeply involved in the development of an experimental support base with two dimensions:

(1) New faculty hires who were dedicated to experimental research. These included Jim Cox (1977), Mark Isaac (1980), Stan Reynolds (1982), and Kevin McCabe (1982).

(2) External funding, primarily from the National Science Foundation, which had supported me at Purdue as early as 1962 and later at other universities; the administration at U of A was committed to support that effort, but it was up to us to define and make the funding appeals. Then, from 1977 to 1982, my original efforts were broadened by the new experimentalists indicated in (1). During this nine-year period (1976-1985), the growing experimental group was awarded over 1.3 million dollars in research funds, mostly from public sources like the National Science Foundation.

### *The ACC Project: Alternatives to RORR*

In 1984 The Arizona Corporation Commission (ACC) provided us with an unprecedented opportunity to examine state utility regulation and to consider its alternatives. It was a political accident. The ACC consists of a three-person elected commission. One of the commissioners had died in office; another, with higher political ambitions, had resigned. Arizona's Governor Babbitt appointed two replacement commissioners to sit until the next regular election. One was Marianne Jennings, a professor of business ethics at Arizona State University; the other was Junius Hoffman, professor of law at the University of Arizona. I knew neither of them, but I later heard that both had been astonished to find out what transpires under the heading of utility regulation. You know how it is: Once you have seen sausage (including head cheese) made, you can't eat it.

At hearings, Junius passed the line of utility lawyers waiting in a row of chairs and asked, “Got your meters running, boys?” I also heard that neither of the new Babbitt appointments wanted to run for the office and continue as commissioners, but desired to have some influence on the process beyond their short tenures. Two of our graduate students were working at the ACC: Dave Porter and Glenn Vail. They educated the ACC on the capabilities of experimental methods with the result that the Commission saw an experimental research project as a way of bringing a fresh perspective on regulation into the public domain. They were right, and they were successful in having a long-term impact on utility liberalization, but not in Arizona to this day.

The project as we defined it had several parts, but two alternatives to RORR were primary: incentive regulation and deregulation. Mark Isaac and Jim Cox took incentive regulation; Stephen Rassenti and I, together with Dave Pingry, opted to examine deregulation and focus on the electrical power industry. Mark and Jim did some generic incentive mechanisms, ran many experiments, and eventually published the results. Our part of the work took much longer to be fully completed and published, but it provided a direct lead into the worldwide deregulation, privatization, and liberalization reforms of the late 1980s and 1990s. It became an influential research program that is still ongoing, but that seemed like a very remote possibility in 1985.

In the 1980s it was almost universally believed that economies of scale, economies of coordination, and wasteful duplication of wires in distribution and transmission meant that electricity was inherently a natural monopoly.



Natural monopoly theory stems from John Stuart Mill, although he did not use the term. Writing in 1848, Mill argued that it was obviously wasteful for more than one mail carrier to retrace the same pathways to deliver the mail, and likewise it would be wasteful for two cities to be connected by two parallel railroad tracks. You may have noticed that in the nineteenth century many people got rich building

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multiple-path competing railroads, and more recently several companies—including UPS and Federal Express—have profited handsomely in competition with the U.S. Post Office, which is still a money loser. Of course the USPO has often argued that that is because the competitors are “cream skimmers.” Yes, but that begs the real question: Why has the USPO created so much cream to skim by under-pricing some classes of service and overpricing others?



There were no more than a handful of academic and industry dissenters who saw the merits of deregulating generation—one of the latter turned out to be Ted Welp, president and CEO of Tucson Electric Power (TEP); also, I believe, Barry, CEO of Virginia Electric Power, had favored deregulation. Some TEP joker at this time suggested that the name be changed to Western Electric Light and Power (WELP). The traditional unchallenged assumptions of natural monopoly produced a world in which no one had asked, “If you were to deregulate electricity and allow markets to discipline prices, how would you do it, and how might it work?” If you don’t ask, you won’t think about or investigate possible answers.

A year later, in 1985, we filed our report recommending that the “energy business” be separated from the “wires business.” Generators would be sold or financially spun off with separate managements, say into five companies that would bid into a spot market—the Arizona Energy Exchange—to supply power to the network. Utilities do not have to produce their own energy any more than they need to manufacture the trucks used by their service people. Also, we proposed that the Exchange be organized as a two-sided bidding mechanism, with demand-side wholesalers and other buyers empowered to bid any of their interruptible loads into the spot market.

Our experiments would in time show that strategic demand-side bidding easily controlled price spikes in wholesale markets like those in California, the Midwest, the South, and the East Coast. The retail customer’s energy does not have to be provided by the local wires company any more than your car rental company needs to supply you with gasoline—you can buy your own in a separate

market. The rental rate for the wires would continue to be regulated, but the utility would be prohibited from having the exclusive legal right to tie the sale of energy to the rental of the wires. Thus the law requiring you to buy your energy, as well as rent the wires, from the local utility would be repealed.

To provide some contestability in the wires business, we also proposed that the franchised legal protection of the local wires monopoly be eliminated. Specifically, utility easements on all property would be declared open to entry by alternative cable and pole users, subject only to the usual environmental and safety considerations. If electricity is truly a “natural” monopoly, it doesn’t require any “unnatural” franchised legal protection. Right? Not quite: historically, legal help had been “needed” by the industry just in case the monopoly was not sufficiently natural. If electricity had ever been a natural monopoly, technological change had undermined it, as it had its sister industry, telecommunications. Our proposed changes would have aligned the organization of the industry with contemporary technology.

Before filing the final report we met with each of the major stakeholders. The utility sector meetings included TEP, where Ted Welp understood our study so well that he chimed in to answer his own management team’s objections to our proposals; Arizona Public Service; and Salt River Project. We also met with the key people at the Regulated Utilities Consumer Organization (RUCO). This is the watchdog organization created and designed to protect the consumer’s interest, and it heartily approved of our study. After the meeting, Mike Block—the overall administrator of our ACC project—and I met with the chairwoman of RUCO. Since she liked our proposal, we asked her if she could publicly support our position after it was announced. She replied that RUCO could not support us publicly. She said that RUCO’s budget was up for renewal by the legislative committee, that one of the utilities had been exceptionally critical of RUCO’s stance lately, and that she was concerned that her budget renewal might be endangered!

Wow, there it was; what is known as the Capture Theory in the economics of regulation. According to this theory the regulated industry necessarily interacts constantly with the regulating organs

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of government and in time those who are regulated capture the regulators. RUCO's chairwoman was bearing eloquent witness to this obscure and difficult-to-prove model of the regulatory process. Actually, the two sides are better thought of as capturing each other, since they have a mutual interest requiring their joint attention.

Capture theory is well supported by the following observation: Whenever there is serious discussion of deregulating any industry, it's the industry itself that opposes it along with the regulators, who need regulation to serve the "public interest." Except for United and Frontier Airlines, the industry opposed airline deregulation; the railroad and trucking industries opposed deregulation of the Interstate Commerce Commission; and so on. You have to ask yourself why? They *like* it, and defend and support regulation, although often not particular actions of the regulators. The average person believes falsely that regulation protects the consumer, and politicians who want to be elected will support regulation if that makes their constituents vote for them. Regulatory regimes tend to be founded firmly on the premise that it will be administered by a fantasy perfect consumer protection process that does not exist in reality. The paradigm here is licensing—that is, prohibiting dental technicians from practicing separately from dentists, justified by "the need to protect quality."

We presented our final report to a reconstituted commission with two newly elected commissioners freshly arrived to do regulatory battle with the forces of general business (and, specifically, utility) evil. They thought we were mad. Also, one of the new commissioners suggested that our study was not well-balanced: We had not considered the alternative of state government ownership of the industry! (An interesting fact is that a couple of years later, after seeing sausage made, he called me to say that he now understood where we were coming from in our original report.) Our report was submitted to the ACC in 1985 on the eve of the unraveling of command-and-control government-owned industries all over the world.

The unsympathetic reception of our proposal was not, however, all for nothing. The study was picked up by many; most prominently the international community, followed by many in the domestic industry, as the liberalization movement picked up steam. Stephen Rassenti and I would eventually serve as research consultants to New Zealand

and Australia, to a few companies in this country, and, with various co-authors, conduct many experimental studies of structural issues related to competitiveness in the industry.



There is a revealing story related to our consulting for a California utility. We conducted several workshops at ESL from 1995 to 1997. In groups of about twenty, utility executives from all over the United States came to the laboratory for a one-day workshop on wholesale power market design issues. They participated in an electricity spot market as supply-side generator owners, and as wholesale bulk demand-side buyers of power for resale to retail customers or for industrial use. The experiments demonstrated that in a two-sided bidding market, five generating companies were enough to yield competitive allocations in an experimental design with a comparable number of demand-side bidders with limited capability of interrupting a portion of their demand, especially on-peak demand. Therefore, given the great volatility in the marginal cost of a kilowatt-hour of energy throughout the day, week, and season, we emphasized the need for the local distribution company to get as many customers as possible on interruptible peak pricing contracts in return for big savings on their cost of consumption. In this way wholesale buyers could discipline wholesale prices and eliminate the common occurrence of peak consumption price spikes.

But with few exceptions, most of the utility executives saw their main problem as striking a political deal with their commissions for an increase in average retail prices per kilowatt-hour to cover anticipated stranded cost due to deregulation. *Stranded cost* was a term used to describe the prospect that generation investments incurred in good faith by the utilities in anticipation of a guaranteed price and fair regulated

return on the investments might not be fully recoverable in a competitive market. It was thought that such assets would not command a price above their depreciated cost, and they wanted the anticipated losses covered as the political price for agreeing to deregulation. We did not see this as their immediate problem, primarily because we believed—based on our learning from experiments—that their main task in preparing for deregulation was to get a market structure with demand-side bidding to help them protect against high wholesale buying prices for energy. During peak-demand hours, the energy cost alone can rise above the regulated retail price, and the utility loses money by, in effect, subsidizing on-peak consumption; these losses have to be offset by the profit earned from off-peak and weekend sales when energy cost is well below the retail price and the utility is, in effect, taxing this off-peak consumption. Under deregulation we argued that it was not in the utility's interest to continue this inefficient practice.

We also saw the stranded-cost argument as a red herring—a way for the utilities to extract a price for agreeing to deregulation, but irrelevant to their adaptive needs in the new world.

The California utility in question paid us consulting fees to come to California and run our experiments with other executives and staff. We proposed to its top management that we design experiments based on that utility's particular grid and generator parameters and get data on the specific demand-side bidding problem that the utility faced. That would allow us to evaluate the benefit in lower wholesale prices of an  $x$  percent increase in their retail demand responsiveness, which could be compared with the cost of achieving that retail flexibility. In the course of the roundtable discussion there were many favorable comments. But their legal counsel pointed out, "This is 'science,'" and

noted that they could not control the outcome. Did the company really want to take that path? I agreed with his premise, saying, "It's precisely because you can't control the result that the experiments are of value. They give you the opportunity to learn about possible consequences and prepare for them." In the end, counsel carried the day, and we were invited only to support their political bid to the state commission for a price increase to cover stranded costs. We respectfully declined to do this sort of "consulting," as we thought it was not a solution to their economic problem.

The rest is history: The California utilities are estimated to have lost \$15 billion buying at very high wholesale prices and reselling at the much lower retail rate they had negotiated as the price of their consent. Of course, we never forecast or even dreamed that the problem would become so severe, with the confluence of such events as abnormal heat, a nuclear plant offline, and low hydro reservoirs in the Pacific Northwest. But all power systems in the world are vulnerable to extreme conditions in which unresponsive demand strains the supply system and threatens power shortages and outages. That is the great danger of a regulatory system in which consumer prices are fixed and all adjustment to hourly, weekly, and seasonally changing demand is a must-serve mandate imposed on the supply system.

I should also note that the widespread anticipation by the industry and the regulators that there would be stranded costs was without empirical merit. One generator auction sale after another brought prices in excess of the fully depreciated historical cost of the generation assets. Why, given all the rhetoric about stranded cost, was it not prominent in the auction prices? I think there is a simple reason for this: When you sell an operating generator connected to

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a transmission network, you are also conveying that generator's established access rights to the network along with the generation plant. Those access rights are valuable, and they are not part of the historical investment cost in the generator itself, but that value will be reflected in the price that the generator will fetch. Market prices reflect system values, and this tells you one more way in which regulation based on piecemeal historical cost is irrelevant in determining economic worth and efficient management. Similarly, when an airline goes bankrupt or is sold to another airline, an important part of the value of the company that is purchased is the right to land and take off in the airports served by the airline. These rights are part of the package value of the airline and may be more desired than any other asset.



I have covered here only the tip of the iceberg of developments that created the synergy that enabled the University of Arizona to emerge as a prominent center in experimental methodology. In 1985 The Economic Science Laboratory (ESL) was officially founded by action of the Board of Regents and the Arizona State Legislature, funding ESL as a research center by a direct budget line from the state. Such "decision packages" were funded on a competitive basis for several years by the state legislature in anticipation that such funds would generate additional research funds; *our mandate was to raise \$2 to \$3 for each dollar of state funding for ESL*, a goal that ESL surpassed, but not until 1995 to 2000.



As a vehicle for implementing the mandate, the University created an ESL "Revenue Account" to which payments were to be made for rental fees whenever the ESL facilities were used by external commercial or government applied research contractors. Subsequently, when the University invited ESL faculty to start a private company under a University

program for “technology transfer,” that company began paying \$500/hour into this account for all its contract use of the facilities. One contract alone generated more than \$200,000 in fees for the ESL/University.



During the next fifteen years many new milestones were passed. New experimental scholars included Brian Binger and Betsy Hoffman (Betsy later left to become a leading university administrator, including in time president of the University of Colorado); Dave Porter came to the U of A from the Jet Propulsion Laboratory at Caltech; Mark Olson came from Purdue; Kevin McCabe was an ESL research scholar from 1988 to 1990, when he left for the University of Minnesota, but he returned as a tenured economics professor in 1995.

An earlier draft of this memoir contained two long chapters, entitled respectively “Initial Flight of the Phoenix” and “Final Flight of the Phoenix.” They dealt with the period 1985 to 2001, which ended when seven of us—all collaborators—left the U of A for George Mason University in Arlington, Virginia. As indicated above, that story must be told, but this is not the place to tell it. You, the reader, deserve to be spared those excruciating details. Versions of those two chapters and all the supporting email and other documentation are at Duke University Libraries, which twenty-odd years ago asked—and I consented—to administer the Vernon L. Smith Archive for my collected correspondence and professional papers.

Suffice it to say that the opportunities that brought us all to Arizona, sadly, were no longer available. This was very disappointing to us, but I and my colleagues did what we had to do to continue our work. Much remained to be accomplished, and I was only seventy-four years from birth.



I and three of my colleagues at Arizona were subjected to allegations of fraud and criminal conduct, and repeated threats of “police action.” None of these claims led to any legal action—abso-

lutely inexcusable, of course, if those making the charges actually believed them, based on evidence. We were charged with bypassing University Office of Sponsored Project (OSP) grant procedures in doing applied research through the private company the University had invited us to set up. But we dutifully had paid all ESL fees through the University-created Revenue Account set up for this purpose when ESL was formed. It turned out that our use of the ESL Revenue Account had generated more funds for the University than if the grants in question had gone through OSP. After five years the issues were settled through mediation in January 2004. In that process we finally had direct contact with University Administrators (not only University Counsel to whom the issue had been delegated), and they learned all these facts. In response to their question, "Who set up this Revenue Account," I was able to say (and show), "You did." (Obviously, I never could have done this except through university accounting). People do not understand the nature of University bureaucracies wherein the left hand does not know what the right hand is doing, nor is it appreciated that all conversation between principals ceases, once Counsel enters as the "mouthpiece!"

So mediation produced the public result: "No admission of wrongdoing. The parties hereby agree, acknowledge and recognize that nothing contained in this Agreement shall constitute or be treated as an admission of liability or wrongdoing by the parties. It is expressly understood and agreed that the settlement made hereunder is by way of compromise and in full and final settlement of disputed claims. The parties hereto acknowledge that each disputes and denies *all* liability and damages claimed against them, and denies they were responsible in any way for the same, or for any damages allegedly resulting therefrom;

and the parties hereto further acknowledge that this settlement made hereunder is not and should not be construed as an admission of liability by any of the parties hereto.” This is legalese for “somebody goofed,” and their faces need to be saved.



Curiously, sometime in 2000-2001 a vice dean at Arizona, hearing rumors that we all might leave, told one of my colleagues that we would never leave Arizona because, (1) “Vernon is too old to leave”; and (2) “No one could afford seven people.” In retrospect, these glib statements were symptomatic, I fear, of the basic problem with a small handful of key people at the university who were mind blind or threatened by change and the accomplishments of others.

There are a great many fine people on the faculty of the University of Arizona, where—in spite of a continuing and much publicized “brain drain”—there are still many very distinguished scholars, scientists, and Regents’ Professors. I wish them only the best and I hope that someday I will be given an opportunity to help their cause. The university administration simplistically blamed the substantial brain drain on the state government’s refusal to provide the university with adequate funding. That cause, however, if true for others who left, was not the reason for our departure. In spite of severe state budget funding problems, we had been able to raise our own student and other support funds at no cost to the taxpayer through ESL’s “Revenue Account” and the International Foundation for Research in Experimental Economics (IFREE), which we founded in 1997. But this success was not without big-time sour grapes.

The sadness of it is not lost in the following upbeat e-mail sent to me on October 10, 2002, by Ed Zajac, a longtime friend and former economics department head at the U of A.

*Vernon,*

**CONGRATULATIONS!!!!**

*When I was department head, by every second Tuesday in October I would have prepared a little speech to give reporters when they called me*

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*for reactions to your getting the Nobel Prize. My speech revolved around the sound bite, "the first 'made in Arizona' Nobel."*

*Alas, I never had a chance to give my speech, and the U of A and the State of Arizona have squandered the opportunities that a "made in Arizona" Nobel would have brought them. But you've gotten a chance to give yours! And you're at a place that is seizing opportunities, not squandering them.*

*You abundantly deserve the Nobel, even though it's years and a day too late [the economics award date was moved to Wednesday]. It must be gratifying to finally have recognized the many years of dedicated, hard work, often in the face of enormous obstacles.*

*Keep up the great work. What you and your group are doing is fascinating and path breaking.*

*Having one Nobel should just spur you on to a second!!!*

*Ed*



*1981 Sophie, Lucy, Vernon, Josh.*



*1989 Vernon at Purdue for Honorary degree ceremony.*

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*1995 Eric, Vernon, Deborah, Torrie, Josh.*



*1996 Vernon at Caltech for commencement  
and Distinguished Alumni award.*



*Chapter 14*  
**My Friends Were Finally Right**

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When this book is mould,  
And a book of many  
Waiting to be sold  
For a casual penny,  
In a little open case,  
In a street unclean and cluttered,  
Where a heavy mud is splattered  
From the passing drays,  
Stranger, pause and look;  
From the dust of ages  
Lift this book,  
Turn the tattered pages,  
Read me, do not let me die!  
Search the fading letters, finding  
Steadfast in the broken binding  
All that once was I!

—Edna St. Vincent Millay,  
“The Poet and His Book”

On October 9, 2002, I walked to my office in Arlington, arriving early, dressed as usual in jeans and a western shirt. I immediately went to my computer to work on a paper I had been writing for several months, entitled “Constructivist and Ecological Rationality in Economics.” Shortly before 9:30 a.m., the phone rang, and the caller identified himself as Torsten Persson, chairman of the Nobel Prize Committee for Economics. When I hung up, I knew who would be publishing the paper I had been working on: the Nobel Foundation.

All prize recipients are asked to write a paper related to the scientific contributions recognized by the prize committee. The paper I had been writing would be just right for this purpose, although that

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prospect had not been part of my original expectations in writing it. I have continued that project with the result that the ninety-odd page typescript I submitted to the Economics Prize Committee is now a 600-plus-page manuscript for a book published in 2008 by Cambridge University Press under the title *Rationality in Economics: Constructivist and Ecological Forms*.

Laureates are also asked to write an autobiography, and I submitted a sixteen-page manuscript that has been expanded into the present memoir. I just now clicked the toolbar for “word count,” and it tells me that there are 522 manuscript pages, but trust me, the book is winding down.

The third assignment for me was to prepare a toast to be delivered at the Nobel Banquet on the evening of December 10, 2002, following the awards ceremony. A recipient in each of the prize areas—physics, chemistry, physiology and medicine, literature, and economics—is asked to prepare a toast. In October, soon after the announcement, I received the following e-mail message from my friend and co-laureate in economics, Danny Kahneman, to which I responded affirmatively: “I am of course counting on you to do the toast, which some people find intimidating, but you won’t. Let me know. See you in Stockholm!”

I guess Danny was right. I will provide you the text of that toast later in this chapter when I discuss the celebrative events in Stockholm, beginning with Candace and me arriving on December 8 and ending with our departure on December 16.

I had met Torsten the previous December at the 2001 Nobel Centennial conference on “Behavioral and Experimental Economics,” one of many such conferences embracing all the various Nobel Prize areas convened in celebration of the 100 years since Alfred Nobel had created his foundation.

The decision by the committee to hold a celebrative conference on this topic a year earlier had generated much speculation that in 2002 or 2003 the committee might indeed recognize the field of experimental economics and/or the field of judgment and decision in cognitive psychology, also sometimes called economic psychology, and now often referred to as behavioral economics. Earlier conferences held by the committee in various fields of economics had, with

only one exception (one out of six as I recall), led in two to three years thereafter to the recognition of one or more scholars in the field of the conference.

Although most people believe that the prize is intended to honor the person, published discussions have explained that in fact the intention is to recognize an influential *contribution* to economics by naming the individual or individuals whom the committee feels are most directly identified with initiating or developing the contribution. This often leads to controversial outcomes because any new contribution must necessarily involve many people precisely because it is influential. Since the awards have a tendency to include early contributors, subsequent and very deserving contributors may not be included in the citation. This applies in my case, as there are several truly distinguished experimentalists who entered the scene later than did I who might otherwise have been considered, and three before me but most of them did not live long enough or did not persevere.

The genesis of experimental economics is relatively easy to articulate because there were so few originators and so few involved in its slow but sure development, beginning at approximately the middle of the twentieth century.

There were two seminal contributors, both long deceased, who influenced the development of experimental economics: Edward Chamberlin and Sidney Siegel (whose influence and contributions are discussed in Chapter 10). I did my first market experiment in January 1956 and continued throughout the 1950s, but I did not publish my first experimental paper until 1962. Simultaneously, Reinhart Selten in Germany was conducting the first oligopoly (competition among a few sellers) experiments, which would be published in 1959. Siegel, in conjunction with Larry Fouraker, did their first bargaining experiments in the 1950s and published them in 1960. Siegel, Fouraker, Shubik, and Harnett, working together at Pennsylvania State (Shubik was at Yale), subsequently conducted many bargaining and oligopoly experiments that would be published in 1963 after Sidney died. Larry Fouraker finished their 1963 book, which had already appeared in the form of three thick Pennsylvania State working papers. My original copies did not survive one of my many moves, but my longtime friend Martin Shubik, cast in concrete

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at Yale, an inveterate packrat who can be counted on to save everything, tells me he still has all of these wonderful treasures. Others in this early period who made contributions include Austin Hoggatt, Lester Lave, and Roger Sherman. In 1963, James Friedman, under the influence of Siegel, Fouraker, and Shubik, would publish his thesis on oligopoly competition. Shortly thereafter, Charles Plott would be much influenced by the experiments that I and various graduate students were doing at Purdue throughout the 1960s. After going to Caltech, Charlie became actively involved in experimental work, applying the induced value methodology to political economy, particularly to voting mechanisms and agenda processes in joint work with Mo Fiorina and Mike Levine, and to the study of mechanisms for the provision of public goods with Roger Noll and John Ferejohn. It would be my work at the beginning, plus that of Charles Plott subsequently, however, that would be most commonly perceived as having a sustained impact in the development of experimental economics.

At the University of Arizona I organized a conference on experimental economics in 1977, and it would be repeated in 1978 with funding by the NSF. In 1985 the Arizona team of experimentalists sponsored the inaugural meeting of the Economic Science Association (ESA) at the Westward Look in Tucson. Membership has grown steadily in ESA, and today it is international in scope and holds every third meeting in Europe. Some years ago I lost contact as a regular participant because of an intense and very demanding travel and research schedule.

I know very little about the history and origins of behavioral economics, and I will leave it to others to articulate that history. The form of it that emerged recently and became identified with the 2002 award is an outgrowth of the development over three or more decades of the judgment and decision-making research in cognitive psychology. But the recognition of this research by psychologists was already in the cards, long in the making, and was not, I think, related to the recent emergence of a sub discipline that has been labeled "behavioral economics." Since experimental economists and cognitive psychologists had been studying behavior since mid-century, this was a confounding label in search of a substantive definition. It

consists of a collection of results in the study of individual decision making that are represented as contrary to the standard economic models. Some have naively defined behavioral economics as the search for results contrary to standard models. I see it, at least in principle, as part of experimental economics; its successes represent potential extensions of reformulated standard models, the latter having originated as consciously simplified exercises in decision analysis.

Much more noteworthy is that many of the behavioral findings in the study of two person interactions by experimentalists, while appearing to challenge standard economic models, are discussed brilliantly by Adam Smith in his first book, *The Theory of Moral Sentiments* (1759). This work was essentially about human sociality, in particular what today is identified with personal socio-economic exchange. Hence, experimental laboratory methods have redirected scholarly attention to its 18<sup>th</sup> century roots in the Scottish Enlightenment. The latter also provided the Classical foundation for the “standard economic models” of today, but these stemmed from Adam Smith’s better known and more influential second book, *The Wealth of Nations* (1776). The latter focused on what we would today call impersonal exchange through markets, which enables specialization, and is indeed the source of all economic betterment through wealth creation.

The 2001 Alfred Nobel Foundation Centenary Conference in Stockholm was attended by the following, who were invited to present a paper or be discussants (in order of the presentations), along with about fifteen other attendees in a small audience:

- Daniel Kahneman (psychology);  
Discussant, James Mirrlees (economics).
- Howard Rachlin (psychology, animal behavior);  
Discussant, George Akerlof (economic theory).
- Vernon Smith (experimental economics);  
Discussant, Reinhard Selten (experimental economics and game theory).
- Charles Plott (experimental political economy and economics);  
Discussant, Jean-Jacques Laffont (economic theory).

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- Alvin Roth (experimental economics and game theory);  
Discussant, Thomas Palfrey (political economy, theory and experiment).
- Paul Slovic (psychology);  
Discussant, Sendhil Mullainathan (behavioral economics).
- Richard Thaler (behavioral economics);  
Discussant, Robert Shiller (economics).
- George Loewenstein (psychology);  
Discussant, Dan Gilbert (psychology).
- Matt Rabin (economic theory),  
Discussant, Ariel Rubinstein (economic theory).
- David Laibson (behavioral economics);  
Discussant, Roland Bernabou (economics).
- Colin Camerer (behavioral economics);  
Discussant, Amnon Rapoport (psychology).
- Ernst Fehr (experimental and behavioral economics);  
Discussant, Charles Manski (economic theory).

I will not comment in detail on the content and emphasis of this program, but the professional political overtones were impressive. Although I personally do not feel strongly about its content and participants, many others did and still do. Some feel that the program was “rigged” to elevate behavioral economics—a derivative of psychology recently identified, some say, to differentiate its product from experimental economics—above what it “deserved” at that time in intellectual history. This is just your standard garden variety of professional maneuvering.

It is indeed the case that of twelve papers, only three were directly on topics dealing with the performance of markets: those by me, Plott, and Roth. The rest were on utility, social preferences, or individual choice or decision and were closely associated with psychology and economics. In fact, after I saw the preliminary program, I abandoned the original title I had proposed on personal exchange (Trust Games) and substituted a paper on electricity market design. I felt that more than enough was being done by others on individual decision and two-person games of strategy, and not enough on market issues.

Whether or not the “rigging” charge has substance, the subsequent 2002 award to Daniel Kahneman would have been absolutely assured in any case—in recognition of the contributions of cognitive psychology—absent any allegations of posturing for behavioral economics. This is suggested strongly by the fact that when the Nobel was awarded to the three game theorists (John Harsanyi, John Nash and Reinhard Selten) in 1994, the backup candidate—in the event that the first choice of the committee was rejected by the academy—was Amos Tversky, for decades part of the Kahneman-Tversky team, since deceased, which demonstrates the necessity of living a long time, as well as making Nobel-worthy contributions. (See Sylvia Nasar, *A Beautiful Mind*, for a discussion of Tversky’s 1994 candidacy.)



Bill Vickery (1914-1996) died only days after the announcement of his award in 1996, and the deserving Sid Siegel died in 1963 at age forty-five, fifteen years before experimental economics was a blip on the committee’s radar screen. The blip known to me was about 1978 when I recall first receiving a request from Stockholm to make a nomination, implying that at least one person had nominated me. It was in the early 1980s that I first began hearing rumors that I was alleged to be in the “running” for a Nobel Prize. I nominated Bill Vickery eighteen years before he received the award, which gives you an idea how long the gestation period is once you are on the committee’s agenda. Believe me I was not holding my breath in anticipation. For me it was a long shot because that had been so for twenty-five years. Here is the citation I wrote for William S. Vickrey, when he was elected a Distinguished Fellow, American Economic Association, 1978: “Many of us have had the experience of thinking we were the first to show the neutrality of a particular tax scheme, to prove the incentive characteristics of a particular bidding institution, to deduce the redistributive implica-

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tions of the expected utility hypothesis, to invent a demand revealing process, and so on, only to find that William S. Vickrey had done it earlier—sometimes much earlier—and whereas our ‘original contribution’ may have contained a minor or even a substantive error, Vickrey had done it correctly. Some great scholars receive recognition from the beginning, but, inscrutably, with others it takes a little longer. His numerous works, appearing in all the leading journals in economics, law, operations research, finance, and taxation, contain many seminal contributions, and many more that would have been seminal but for the fact that the profession was not yet ready for his ideas. Thus, his ‘Counterspeculation, Auctions, and Competitive Sealed Tenders,’ *Journal of Finance*, 1961, (1) invents a class of demand revealing processes for private goods, (2) develops with clarity the important concept of incentive compatibility, and (3) operationalizes these theoretical insights in the form of realizable auctioning institutions. Only later, after the profession had discovered solutions to the ‘free-rider’ problem, was it possible to adequately appreciate Vickrey’s astonishing precursory insights. We are proud to recognize the creative, inspirational, and persistently operational character of William S. Vickrey’s contributions to economic theory and economic policy.”



It would have been inappropriate for me (or any other principal) to have served on such a conference planning committee because the process is thought not to admit such self-serving actions. This, of course, did not rule out soliciting suggestions from all the principals as to who should be invited, which the conference planning committee in fact did. Camerer was a member of the conference committee, and in response to his request I asked that Stephen Rassenti, Kevin McCabe, and Charlie Holt be added to the formal program; that obviously was shot down, although Holt was invited

and was in the small audience of non-participants there to view what was called “a beauty contest.”

If I had been proposing a complete program, it would have included roughly half experimental economists and half psychologists, and would have consisted of the earlier contributors to each field, with the younger contributors serving as discussants or audience participants. Why half psychologists? Partly, I would do this in recognition of the legacy of Daniel Kahneman and Amos Tversky, but my list would have included others with a legacy in their own right: Ward Edwards, along with Paul Slovic, included in the senior list of Kahneman and Tversky contemporaries.

Also, I would have asked Selten to give a paper. This is because I felt, and still feel, that Selten deserved to be considered along with me as an originator. I have never felt that his Nobel Prize in game theory should eliminate him as a contender in experimental economics. His early work paralleled mine, and he even published three years earlier than I did, if that counts for anything. He was unquestionably a father of experimental economics who was still living. It is conceivable that we are yet to see an award in experimental game theory that could include two or three from a group consisting of Selten, Werner Guth, Al Roth and Ken Binmore, and an award in experimental political economy that would include Plott and others as contenders in this emergent and highly successful intellectual enterprise.

I also would have included my longtime friend Richard Thaler as a presenter or discussant at the 2001 conference because he clearly deserved to be heard in spite of his uncontested and preeminent capacity to piss off even his close associates. He could be counted on to be seen “strutting around as if he had already received the award,” to quote one of the conference participants. The worst disappointment of the 2002 awards that emanated from the 2001 conference took the form of a participant who said, “the committee trashed my work and contribution.” Only one who has high self-absorption in the expectation of “winning” will have equally high and unjustifiable disappointments.

As to the award itself, why were Selten and Plott not included? Selten, I suspect, was out because he already had been recognized in game theory. Plott, as some think, may have had too many skel-

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etons in his closet, and it is hard to change a lifetime's accumulation. As a close Caltech colleague once said, "Charlie thinks everyone is just like he is." But I think it is likely that he is simply in line for a different but fitting citation. You have to realize that the Nobel is about recognizing influential contributions, not personalities, in which case I guess that neither Selten nor Plott is completely counted out of future Nobel action.

If I had been making the decision to recognize economic psychology and experimental economics, I would have done it in back-to-back years, with separate and distinct prizes for each area, because their respective contributions and methodologies are so completely different and in some cases conflict with each other in ways that I believe are not methodologically reconcilable. Combining them into one award caused much confusion on distinctions of substance. For example if you read the article in *The New York Times*, and Joe Stiglitz's Web site statement, each describing the 2002 Economics Award, you will find that neither writer had a clue as to what my contribution was. Similarly there were public comments that failed to notice Kahneman's work.

My candidates in psychology would have been Danny Kahneman, Paul Slovic, and Ward Edwards, who were prominent among the early founders of that tradition.

In experimental economics Reinhard Selten and I make sense. I would also have considered Martin Shubik as well as Charlie. Numerous people have received more than one prize in the sciences, and that action would have been appropriate for Reinhard and path breaking for the prize committee in economics. But why Martin? Because, trust me, no one has a better understanding of economic institutions, their essential embedded role in the economic processes of society, and their relationship to game theory. But I am not sanguine about the ability of economists to see the central role of institutional analysis to economics in Martin's lifetime. He and I are the same age. Ultimately, of course, I have no doubt that institutional economics and its many other contributors will be recognized.

I favor a completely separate recognition for political economy, where my candidate would be Charlie Plott, whose contributions are wide ranging and who is strongly associated with the field of

experimental political economy, as well as the distinguished political scientist Elinor Ostrom, from the University of Indiana. Lin's contributions are truly exceptional in terms of both laboratory and field empirical understanding of how people all over the world have generated self-organizing institutions for governing the commons.

Down the road I anticipate specific recognition of the theory and application of auctions. My candidates would be Paul Milgrom in auction theory and applications; Stephen Rassenti, who more than anyone else invented and developed combinatorial auctions; and Bob Wilson, for his work in the theory of auctions, in electricity market design, and for his attempted assault on modeling the continuous double auction and in the process demonstrating the inherent limitations of the current toolkit for game-theoretic analysis—itsself a key insight.

A long time down the road “neuro-economics,” as my associate Kevin McCabe has called it, applying the new tools of neuroscience to individual, interactive, and market decision making, may be recognized. But that field is growing fast, and many entrants are engaged in transparent maneuvering with their eyes on Stockholm, and they may end up neutralizing each other.

None of my remunerations above takes account of the politics of science in the Swedish Academy, of which I am ignorant. Hence, some of the above suggestions may not be feasible, although there is evidence that there are those in the Academy who favor broadening the prize to include the social sciences more generally. I believe this has great merit. Sylvia Nasar reports in *A Beautiful Mind* that many in the Academy much regret having allowed the Bank of Sweden to recognize a Prize in Economics. I think this position also has some merit: Economists do indeed have pretensions to knowledge that outrun their delivery capacity. The prize rewards contributions narrowly influential within the profession, as in the sciences, but people expect economics to have a much broader significance for society than is clear in the award citations. People don't expect to understand the awards in physics, and therefore cut the awardees lots of slack. We economists are not afforded that privilege.

In his call from Stockholm, October 9, 2002, Torsten Persson explained why he was calling, noted that he was on a speaker phone

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with the entire economics committee present, and proceeded to read the citation over the phone. He then asked, “How do you feel?” My reply, “Relieved. My friends have been predicting this for twenty years, and I am glad that they are finally right.” The problem with the friendly predictions is that although the process is totally out of your control you have this sense that you have failed your friends.

Candace and I flew into Stockholm on December 6. We deplaned to find a welcoming committee of two standing in the departure tunnel at the entrance to the airplane: the president of the Swedish Academy; and Steffen, the attaché assigned to us for the next ten days. It was the first and last time I have been met at the exit door of an airplane. We were ushered down the stairwell to the limousine assigned to us for the week, which was parked directly below the airplane. There we met Boe, our driver, who introduced himself in perfect English, saying that he would be constantly at our service. “I hope to be your friend for life,” he said. These Swedes really are incredible.

We proceeded in the car to a VIP room with soft drinks and snacks, where we were briefed while an assistant took our passports, handled customs, and retrieved our luggage. Before we left for the Grand Hotel with our driver and Steffen, the president handed me a pair of patent leather shoes to go with the formal attire that we had already arranged to rent and pick up in Stockholm. We would learn that this was a precaution, a gentle Swedish hint that my cowboy boots would not be in order. More on that later, but for the record I had no intention of violating the Nobel protocol—when in Stockholm, do proudly as the Swedes do!

Boe gave us a tour of the city—it’s situated on thirty islands! He did the same for my and Candace’s families in attendance, and was a peerless friend for the week—and for life.

My family included my four children—Deborah, Eric, Torrie, and Joshua—my grandson, Tal, my wife, Candace, and two ex-wives and dear friends, Joyce (Harkleroad) Smith and Carol Breckner. Candace’s family included her sister and brother-in-law, Sandy and Tracy. Little did we realize that except for a few official events, we would have no significant time to spend with our families.

Stockholm during the Nobel celebration is like Hollywood during the Academy Awards. Television and newspapers blast away constantly, and you cannot go on the street without being recognized.

Moreover, you are expected to be knowledgeable on all matters ranging from the human to the divine. But I was forewarned and humbled by the wise counsel of Hayek, whose banquet speech (see Nobel Web site) expressed his reservations about the very existence of the Nobel Prize in Economics:

There is no reason why a man who has made a distinctive contribution to economic science should be omni competent on all problems of society—as the press tends to treat him till in the end he may himself be persuaded to believe. One is even made to feel it a public duty to pronounce on problems to which one may not have devoted special attention. I am not sure that it is desirable to strengthen the influence of a few individual economists by such a ceremonial and eye-catching recognition of achievements, perhaps of the distant past. I am therefore almost inclined to suggest that you require from your laureates an oath of humility, a sort of Hippocratic Oath never to exceed in public pronouncements the limits of their competence. Or you ought at least, on conferring the prize, remind the recipient of the sage counsel of one of the great men in our subject, Alfred Marshall, who wrote: “Students of social science, must fear popular approval: Evil is with them when all men speak well of them.”

That is good advice from Hayek and Marshall; may I be restrained by its message from straying too far from the topics that I have studied most intensively, and where even there wide is the gate that leads to error.

Attendance by two ex-wives would turn out to provide grist for an attempted sensation by the Stockholm tabloids, but it went nowhere. When asked by one of the journalists why I had invited two ex-wives,

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I said, “Why would I not? We’re friends, not enemies.” I think this helped to scotch it, but more significantly Steffen weighed in heavily, issuing a stern warning for them to lay off. He made it clear that they were in trouble if they tried to make anything untoward out of this innocent family business. The mature young Swede in training for the diplomatic corps could say what I could not.

Quite by accident, Candace got the underground story behind the black patent leather shoes. Early in the week a cocktail reception was scheduled. Although Candace had commissioned two beautiful formal dresses that were packed and ready along with the Hong Kong suits I had bought her the previous year, and assorted other dress wear, she had “nothing”—as she put it—that qualified as a cocktail dress. She got instructions at the hotel desk on local shopping and walked to an upscale shopping district. She found the right store and an attendant, and explained what she needed.

“What is the event?” asked the attendant.

“My husband and I are attending a Nobel cocktail reception,” was the reply.

“Why are you invited?”

“My husband is one of the laureates.”

“Which one is he?”

“He is Vernon Smith in economics.”

“Is he the one with the pony tail?”

“Yes.”

“Tell me—everyone in Stockholm is wondering—will he wear his boots to the award ceremony?”

That citizen’s query summarized what was seen as most important about the great scientific and intellectual cultural event of the year at the Mecca of all such events! For the record, I did not wear my boots at the ceremony, or at the banquet that followed, because I wanted to honor the Swedish tradition and follow its long-practiced protocol of celebration. Boe, however, was instructed to have my boots in the limo and to deliver them to me immediately after the banquet to do service at the Grand Ball beginning at midnight. I did not wear the patent leather shoes—I wore conventional black dress shoes, as did others, purchased earlier for the occasion at the Western Warehouse in Tucson—but the reason was very practical:

I did my honest best with the patent leather shoes, but they were so slippery that I was afraid to wear them. It would not serve my distinguished and respected hosts if I were to fall onstage as I approached the king; nor did I want to fall at the banquet, where I knew I would have to ascend to the podium to give my toast. You have to show the proper respect!

Here is the long version of my toast, cut slightly in its oral presentation:

YOUR MAJESTIES, THE ROYAL ACADEMY, MY FELLOW LAUREATES, LADIES AND GENTLEMEN. I RISE TO OFFER A TOAST. IN THIS TOAST

I WISH TO CELEBRATE:

- THE ROYAL FAMILY, FOR THEIR GRACE AND CHARM IN THIS MAGNIFICENT AFFIRMATION OF THE DIGNITY OF HUMAN KIND.
- DANIEL KAHNEMAN, FOR HIS INGENUITY IN THE STUDY AND UNDERSTANDING OF HUMAN DECISION AND ITS ASSOCIATED COGNITIVE PROCESSES DEMONSTRATING THAT THE LOGIC OF CHOICE AND THE ECOLOGY OF CHOICE CAN BE DIVERGENT.
- THE PIONEERING INFLUENCE OF SIDNEY SIEGEL, AMOS TVERSKY, MARTIN SHUBIK, AND CHARLES PLOTT ON THE INTELLECTUAL MOVEMENT THAT CULMINATED IN THE ECONOMICS AWARD FOR 2002.
- HUMANITY'S MOST SIGNIFICANT EMERGENT CREATION: MARKETS.
- MANDEVILLE, WHO SAID: "THE WORST OF ALL THE MULTITUDE DID SOMETHING FOR THE COMMON GOOD."
- THE ANCIENT JUDEO COMMANDMENTS: THOU SHALT NOT STEAL OR COVET THE POSSESSIONS OF THY NEIGHBOR, WHICH PROVIDE THE

PROPERTY RIGHT FOUNDATIONS FOR MARKETS, AND WARNED THAT PETTY DISTRIBUTIONAL JEALOUSY MUST NOT BE ALLOWED TO DESTROY THEM. NEITHER SHALT THOU COMMIT MURDER, ADULTERY OR BEAR FALSE WITNESS, WHICH PROVIDE THE FOUNDATIONS FOR COHESIVE SOCIAL EXCHANGE.

- DAVID HUME, WHO DECLARED THE THREE LAWS OF HUMAN NATURE: THE RIGHT OF POSSESSION, ITS TRANSFERENCE BY CONSENT, AND THE PERFORMANCE OF PROMISES, AND TAUGHT THAT THE RULES OF MORALITY ARE NOT THE CONCLUSIONS OF REASON.
- BASTIAT, WHO SAID THAT IF GOODS DO NOT CROSS BORDERS SOLDIERS WILL.
- F. A. HAYEK, FOR TEACHING US THAT AN ECONOMIST WHO IS ONLY AN ECONOMIST CANNOT BE A GOOD ECONOMIST; THAT FRUITFUL SOCIAL SCIENCE MUST BE VERY LARGELY A STUDY OF WHAT IS NOT; THAT REASON PROPERLY USED RECOGNIZES ITS OWN LIMITATIONS; THAT CIVILIZATION RESTS ON THE FACT THAT WE ALL BENEFIT FROM KNOWLEDGE THAT WE DO NOT POSSESS AS INDIVIDUALS; AND WHO SAW EMERGENT INSTITUTIONS AS SUPER-INDIVIDUAL STRUCTURES WITHIN WHICH INDIVIDUALS FOUND GREAT OPPORTUNITIES THAT COULD TAKE ACCOUNT OF MORE FACTUAL CIRCUMSTANCES THAN INDIVIDUALS COULD PERCEIVE, AND IN CONSEQUENCE IS IN SOME RESPECTS SUPERIOR TO OR “WISER” THAN HUMAN REASON.
- BEN FRANKLIN, WHO SAID, “TELL ME AND I FORGET, TEACH ME AND I REMEMBER, INVOLVE ME AND I LEARN.”
- AND FINALLY, KAHLIL GIBRAN, FROM WHOM WE LEARN THE TRUTH THAT “WORK IS LOVE MADE VISIBLE.”

THE ROYAL BANQUET  
BLUE HALL  
STOCKHOLM, SWEDEN  
DECEMBER 10, 2002

If you view the TV coverage (taped) of the banquet, you will see that the royal family was very pleased with this toast, and Candace and I like satisfied customers. I heard through some of my academic contacts in Sweden, however, that there were some politicians and leaders who were not thrilled by my explicit call in support of the classical liberal tradition of economic freedom and the rule of law.

I gave many interviews and lectures during our stay in Sweden. One was the traditional lecture given by economic laureates at Uppsala University, where my banquet toast probably helped to get me a heckler in the audience who surfaced during the Q&A period. The chairman was very permissive of the heckler's interruption of my attempt to answer his questions, but the audience was not. They burst out in applause when my more polite responses failed and I firmly announced, "You are wrong!"

Since October 9, 2002, I have given many lectures, participated in panel discussions, radio, newspaper, and television interviews, visited Mexico, Latin America, Norse Country, Italy, Austria, China, Australia, Taiwan, Singapore, South Korea, Republic of Georgia, etc., speaking on experimental economics but more broadly on the world economy, globalization, trade, liberalization, and issues related to reducing world poverty, disease, and conflict in which I always try to show connections to what we have learned in the laboratory, from economic history and from economic prehistory about the well springs of wealth creation through specialization and exchange, whether the latter be personal or impersonal.

In the space I have here I can say little to convey the richness of that experience and how strongly I feel about the war that embroils us. Like all wars, it is a tragedy—a tragedy for my country, our friends and allies in the world, and for me. I hope that this, even this, will pass in my lifetime, though unfortunately many everywhere seek to fix blame when there is more than enough to go around.

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Speaking of the Iraqi War, here is a (very dated) piece I wrote for the *Wall Street Journal* that was published on December 22, 2003. Although it is my understanding that there was strong internal quasi-official support by the Provisional Transitional Government for an Iraqi Fund limited to oil royalty payments—the Iraqi leadership opposed privatization as virtually all government “servants” do—there had been no announcement of official public support when I wrote the article. The basic problem with the proposal is that no one knows how to create the preconditions in culture and tradition that might enable it to be realized, and in this sense was and is idealistic for Iraq.

**The Iraqi People’s Fund**  
**By Vernon L. Smith**

With the capture of Saddam Hussein, President Bush has a great symbolic victory against his critics. However, the unfinished Iraqi economic reconstruction presents the president with a historic opportunity to craft a new geopolitical-economic paradigm that could—and should—become a world model for the movement of assets from governments to citizens.

The last decades have seen a world-wide transfer of state-owned assets to private entities, most often as governments have found themselves unable to afford their varying brands of socialism. However, this transfer of assets has served largely to generate funds for governments—sales to retire government debt, fund political priorities, or as an alternative to raising taxes—creating a funding system easier for politicians but more difficult for the public it serves.

For long-term success, the enormous task of nation rebuilding in Iraq requires attention to more than the creation of a political democracy. No matter how well-intentioned and democratic it might be, the next government will be tempted by corruption, violation of rights, and expanded political power if it owns and controls the great economic wealth potential of Iraq. This is the time, and Iraq is the place, to create an economic system embracing the revolutionary principle that public assets belong directly to the public—and can be managed

to further individual benefit and free choice, without intermediate government ownership in the public name.

In Iraq, the rights in question are to the former government's producing properties, transportation, terminal facilities, waterways, land and subsurface rights. These assets should first be declared transferred to the account of the citizens, recognizing the birthright of each citizen to a personal, empowering property right in the land and assets of the country of their birth. All citizens should have an equal share in this fund and be issued the same number of share claims to the fund.

Over a period of several decades, all Iraqi assets should be auctioned to the highest bidders in an individual, national and international business competition so that each asset or bundle of complementary assets is transferred to the bidders who value them most for production, development or exploration. The auction could begin by selling existing producing oil properties, refineries, pipelines, and gathering, separating and terminal facilities over the next several years, then move to mineral, oil and gas exploration leases, and to land surface rights.

The proceeds would be deposited in a giant mutual fund for investment in index securities of the world's stock markets and monitored—but not managed—by the U.N. Investing in stock indexes would minimize the need for discretionary financial management, and the prospect of the next government exercising or re-establishing any central control over Iraqi assets. The Iraqi Fund should be a closed-end fund whose shares are tradable and listed on world stock exchanges. The proceeds of each new property auction would be deposited to the account for investment in index funds. Redemptions at market value would go to any Iraqi citizen who elects at any time to cash out any portion of his shares.

There is a very important precedent, in part, for this action: the Alaska Permanent Fund. The state of Alaska elected to put a portion of its vast Prudhoe Bay annual royalty revenue into a citizens' Permanent Fund for investment in securities. Each year a dividend from this

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fund is paid to every Alaskan citizen. This Fund was the first to recognize the full rights of citizens to share directly in the income from public assets.

This Fund, however, had three important shortcomings that should not be repeated in the proposed Iraqi Fund.

- First, Alaska did not put all of Prudhoe Bay state revenue into the people's account. A portion of it went to the state government. When oil prices went up, the state succumbed to the temptation to repeal its income tax and spend its oil income as if there were no tomorrow. Consequently, today the Alaskan government has a budget crisis and a deficit gap, but the 600,000 Alaskan citizens still share equally in the dividends from their Fund, now worth \$27 billion.

It is better, because it disciplines government spending, for the political process to have to pass through the eye of the needle of voter scrutiny of tax and spending policies than to have free priority access to what should be the people's earnings on their assets.

- Second, the Alaska Fund is not a ready source of private investment and venture capital for its individual owners. This is because there are no tradable certificate shares in its mutual fund. This lack of liquidity denies citizens access to capital markets: An individual citizen cannot sell some portion of his shares for investment in a private start-up business, or borrow against the shares for such investment. It serves as a serious impediment to individuals desiring to finance private economic developments and new ventures.
- Third, the Alaska Fund was a one-time-only event: Only the Prudhoe Bay revenues were committed to the Fund. There was no permanent recognition of citizen rights to have the proceeds of all future state-asset sales placed in the fund.

The Iraqi People's Fund would consist of tradable shares; all public property would be held, then sold, for the account of the fund; and

the new government would be required to obtain its revenue from taxes levied on the citizens who are willing to elect them and finance their spending programs. The government could not raid the fund to finance its operations. All this could be made explicit in the Iraqi constitution.

There should be room in the proposal for a temporary transition mechanism. For example, sales of citizen shares in the fund might be limited at first, but gradually lifted as citizen registrations and claims were settled, and the auction/sales mechanisms became established. Also, an initial budget set-aside for financing the new government might be in order, but this budget should decline on a fixed planning schedule at 15-20 percent per year as the new government gets its tax and spending program together.

This action would launch the new Iraqi state as one based on individual human rights and the rule of law, and give it rock-hard credibility by giving every citizen a stake in that new regime. The objective is to undermine any citizen sense of disenfranchisement in the country's wealth, or economic and political future, and to galvanize citizen support for a democratic regime. Now is the time to act, before post-war business-as-usual creates de facto foreign and domestic spoils-of-war property right claims, leaving out a citizenry brutalized by a totalitarian regime and in sore need of empowerment.

Despite its simplicity, this proposal is by no means a modest venture—demonstrated by unsuccessful half-efforts at privatizing public assets around the world. However, the political devil in focusing on too many competing details is to risk missing the overarching principle of restoring individual ownership in Iraq. Like the Marshall Plan, the details must be subjugated to the principle. The details, if wrong, can later be repaired. The principle, once corrupted, can never be reinstated. The Iraqi Citizens' Fund requires that the principle of individual ownership be primary.

A central issue in Iraq—as well as in the United States and other countries—remains whether the people control government through

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voting and taxes or the government controls the people through a monopoly on natural resources. To break that monopoly, the Bush administration and the Iraqi Governing Council have a momentous opportunity to instate a new paradigm. Only an owner-people can ensure a prosperous Iraqi state.

## *Chapter 15*

# **Wives, Daughters, and Sons**

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Let no man write my epitaph. Please, God, let a woman write it: my wife, Candace.

After I went to work for Boeing in June 1943, I had little social involvement in high school other than to parachute in for two classes per week and for gym requirements. The war also seemed to change everything. With gas rationing we all carpooled and commuted to work, and that is how I met my first love, Mildred Anderson. She appeared one night about 11:30 p.m. in my third-shift car pool in December 1943.

Mildred was from Evansville, Minnesota, and was a Swede. We dated regularly for about eight months. She had migrated to Wichita to work for the war effort. About the time I left Boeing to go to Friends University, she left Wichita to return to her home in Minnesota. I was just turning seventeen when I met her. She was twenty. First love is very strong and very special; you don't readily forget the feelings. We corresponded regularly, continuing until after I went to Caltech in the fall of 1945. Then one day she wrote to say she was getting married to a longtime local acquaintance, back from the war, whom she had mentioned earlier. I called to protest, but she was under family pressure and the course was set.

On occasion we continued to correspond. I was apprised of the birth of her two children and their progress growing up. She was happy. When we drove to Alaska in 1965, from West Lafayette, Indiana, we drove through Evansville. I stopped and went to the Evansville Bank for some money. I knew that she worked for the bank. She was there, dumbfounded to see me; we talked for only a few minutes, I got the traveler's check cashed, and I was off for the Yukon and Alaska. Years later I was at a conference in Minneapolis. I called her in Evansville, and she drove up to see me. She was now

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separated—divorce was not in the cards for a devoted Lutheran. We had a good visit, reminiscing about the war years, all the intervening change, about the way we were, and so on. We were content with how things had worked out and were happy to have once loved, but we remembered the heartaches.

All's well that ends well.

I was back working for Boeing as a summer employee in Dad's Boeing machine shop in 1946. I met and dated Margot Tompkins (I was nineteen, and she was twenty-seven). That turned out to be a romantic dead end; I spent the summer of 1947 on the road and working in Saskatchewan. I hitchhiked more than 5,000 miles that summer. I first hitched to Minnesota, where I met up with a group of young liberal-socialist types organized by some Wisconsin "progressive" group. We were assembling in Minnesota to go to Saskatchewan to find out about their new socialist government. That is where I met E. Scott Maynes (rhymes with Keynes). Scott was studying economics in college and had two books with him: Lord Beveridge, *Full Employment in a Free Society*; and John Maynard Keynes, *The Theory of Employment, Interest and Money*. I read the first and tried to read the second in my spare time, Scott and I talked about them, and in retrospect it is clear that this was the beginning of my career interest in economics. He had brought two friends (girls) with him from Connecticut in the Juggernaut, Scott's Model A Ford, with rumble seat. They took me in, stacked the bags on the car's roof, and we headed northwest for Regina, Saskatchewan. We went through Evansville, but we kept moving and did not stop. The three passengers shared gas and took turns riding in the rumble seat. We slept all night on a Portal, North Dakota, railroad loading platform, fully clothed in our sleeping bags, trying to keep warm. It was cold as a witch's teat. We cuddled which did not interfere a whit with our Platonic relationship, but it helped a little to keep us warm. I thought of the farm when I got up in the middle of the night needing to take a leak, and realized that at nineteen I was aging—I could not make it though the night in spite of monumental incentives to stay in the sack. That problem was still with me in spades at seventy-seven, but so far I have successfully avoided both the plumbers and the medications. I tried the latter—one for shrinking the prostate—but the side

effects meddled negatively with my sex life, so I quickly dropped that hot potato.

In Regina we met the others coming up from our rendezvous in Minnesota, and met en masse with the legislature and with Socialist Premier Douglas; the plan was to follow the path of New Zealand, and other democratic socialist governments, and to create the first “socialist paradise” in North America. I remember that we all slept on the floor of a local Regina bar—it was hard but warm. After a few days of reveling in this climate of political fantasy to be, we headed for Moose Jaw. We were all invited to a big dance that Saturday night. It was great fun, especially when one of the local ladies was crowned Miss Moose Jaw of 1945.

The itinerary for our group from the United States was ending, and we were all on our own. The girls took off. Scott and I decided to head up to Carrot River to work in a mill that cut and finished lumber for homes. That is where I learned to make open-pot coffee from a Norwegian immigrant to Canada, who was the foreman on the lumber mill. It was a great summer. Scott dropped me off back south somewhere as he headed east. I hitchhiked home and was soon off for the new academic year at Caltech. I hitched to Denver, visited with Margot—still a dead end—then hitched down through Pueblo to Amarillo, ate at a restaurant that advertised Tender Coffee and Rich Steaks, slept under the stars in a pasture, and ended up taking the bus to Pasadena.

In the summer of 1947 I was back working for Boeing, this time in the engineering department. That is how I met Jane Hall. She was a civil engineer out of the Missouri School of Mines full time at Boeing (I was twenty, and she was twenty-eight; for some reason I was taking up with older women—I recommend it). She moved to Southern California just before I graduated from Caltech in 1949, so we were back together for a short time before I returned to Wichita, then went to KU in Lawrence and continued in economics. We stayed in touch after I was married to Joyce. When we moved to Cambridge, Jane was there studying architecture. When Torrie was born she brought a gift, one of those mobiles to attach to Torrie’s crib. Torrie loved to shake the crib and laugh at all the birds jiggling on the threads that formed the mobile. Jane moved back to St. Louis,

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her original home. I used to look her up whenever I was in St. Louis on business. The last time I saw her was probably twenty odd years ago. She was married to an older retired gent. I went to their home to meet him. She and they were doing OK; not long thereafter he joined the ranks of the deceased. Some years later, I called St. Louis information: There was no longer a listing for J. C. Hall. Living alone, she avoided advertising herself as a woman. So Jane has disappeared after six decades—longtime good friends just come and go.

But the first real love of my life was Joyce. As I said earlier, I met her in John Ise's class—Economic Systems, meaning capitalism, socialism, etc. She sat in the row ahead of me and had beautiful, long, black hair. She lived in the women's co-op, Henley House; that gave us something in common besides taking the same class. We hit it off and started dating. Joyce's mother was an ex-schoolteacher from Belle Plain, and her father was a telegrapher on the famous Rock Island Road (Rock Island and Pacific, but the Pacific ambition was never realized—as I have indicated, that's the railroad business), the railroad that also employed my great aunt's husband, Dub McCracken, as an engineer.

Joyce's parents lived in Whitewater, a small town on the Rock Island not far from Wichita. When we went home for family visits, we could easily get together, and we met each other's family. My dad and Mom really liked Joyce; it was the right match. We were married on a lovely June day in 1950 at the KU chapel. It was a small affair with family and a few close friends. We found an apartment on Ohio Street, where we lived until we started the Couples Co-op, then moved down the street to 1334 Ohio, next door to the fourteen-carat asshole I discussed earlier, perhaps in more detail than he deserved, who lived next door to the Jayhawker Inn.

We were young and had much to learn, but we had a blast-off start eleven months later on May 5, when Deborah and Eric were born, and I began ferrying mother's milk from the home hand-pump station to St. Elizabeth's hospital. Then it was off to Harvard, and the next big family event was Torrie, born in Cambridge in April 1955, followed by the completion of my dissertation and the move to Purdue. While we were at Purdue and Joyce was commuting to Meadville Theological Seminary at the University of Chicago, she

began discovering the poetry in herself. She was thoughtful and expressive, and she had found her calling. It was a great, if vicarious, experience for me, as I was helping to make it possible. As I have already written, she was a natural for her newfound ministerial track. Those were golden years.

The details do not matter, but after many years of strict monogamy, we strayed. We violated one of the “thou shalt nots,” thinking that it mattered not if you were open and honest with each other and discussed it. If you are going to commit adultery, yes, level with each other about it, and try to convert it into a way of strengthening your marriage, but don’t count on it working out that way in the long run. “The rules of morality are not the result of reason,” as David Hume so wisely noted.

Ultimately, after Sherborn and Palo Alto, where we lived while I was at the Center for Advanced Study in the Behavioral Sciences in 1971-72, we began drifting apart, and we decided to separate. I met Carol at the Center, but that was not a fundamental cause of what was transpiring, for it had started in the early 1960s. Many years later Joyce sent me a note acknowledging it all and “apologizing,” but it was not an issue of fault; it was an issue of forgiveness for us both, and we forgave each other. In Palo Alto we decided to tell our children about the separation (although we did not actually separate until the next year, after we moved to Pasadena), and we did, but only Deborah and Eric in a four-way meeting; Joyce did not feel comfortable including Torrie. It was against my instincts, but Joyce’s sense of it had to be respected.

Joyce undertook the task of finding a new ministry and succeeded the following year while we were living in our apartment in Pasadena. It was the leading Unitarian Church in the D.C. area. Joyce was getting her due, exactly what she deserved and had earned. Her calling budded into a big-time success, as she went on eventually to become the Head of Ministry at the UUA in Boston—the number-two position behind the UUA President.

Years after we separated and I had moved to Arizona, we were divorced—a \$50 do-it-yourself job, under California law. There was nothing to contest, and lawyers would have found something, so we eschewed them. We split our assets down the middle. We had been

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married for twenty-five years, from 1950 to 1975. Margaret Mead was divorced after as many years, and someone asked her what was wrong with the marriage. She said, "Nothing, it was a perfectly good marriage. We just wore it out." With Joyce and me, I am more certain of the first part of Mead's response than I am of the last. Joyce is a wonderful person and woman, one who can love and be loved, a fact to which her children can testify.

From the beginning Deborah was destined to do her father proud. There are crawlers, and there are walkers. Deborah was the former. There is no need to hurry into walking when you can crawl, climb, and loco mote so well on all four. Exhausted from crawling, she once fell dead asleep in Lawrence on the screen door sill, door ajar, after managing to open the screen door, then trying to crawl through it. She would have made it, but she pooped out on the trail. That was a harbinger of her ability to reach, commit, and focus her own resources on any task.

Deborah's mental functioning is similar to mine, although it took decades for me to know myself and therefore as long to recognize it in her. She has to be left to herself to figure things out. Like me, she doesn't readily catch on or get what others may see about a situation. They are impatient about "the way she is." To me that sounds close to my mental home. That is not slowness; it's being methodical. It's a neuro physiological style. It's the way her brain works, and no two brains work quite alike. In school she always could get it, not always fast, but get it right. School is not set up for the slow but thorough. School is set up for the quick, so they can get on to the next quick thing, and it sucks. It's not life; it's a faulty construction made out of imagining life, not living it. I wish that we knew, that I knew, how to tailor each person's education to the architecture of his or her particular brain, but also recognizing that the brain in part develops in the crucible of educational experience.

After finishing a degree in psychology and waiting tables, Deborah went back to school—part time, a couple of courses at a time—math, physics, chemistry, etc., at her own pace. She worked her ass off and mastered what she was determined to master, graduating in chemical engineering at Washington University in St. Louis.

Best of all, she produced for me a grandson, Tal. I had given up ever having a grandson, and just flat-out had my own—Joshua, thirty years younger than the twins. Tal is my childhood namesake, squarely out of my homeland. I don't know Tal well, which is my loss, but that is changing. He came to Stockholm with his mom. That pleased me. He's quiet, but still water runs deep.

Deborah and Eric, born two months prematurely, weighed only 3.2 and 3.6 pounds. They were kept in hospital incubators and stayed in the hospital an extra four weeks until they reached the take-home-formula weight of 5 pounds. In the incubators they breathed an oxygen-rich atmosphere, long known to increase the survival rate of "preemies." It seems—if my memory of the pediatric feedback of the time is correct—that sometime after hospital nursery wards had adopted the incubator-oxygen technology, along with their increased survival came the finding that about 5 percent of preemies were blind. The early diagnosis was confused with German measles, which leaves babies blind. With less-than-ideal records, and with great variability across hospitals, there was plenty of room for error. Then it was noticed that there seemed to be a correlation with oxygen—for a while it was thought to be related to not enough oxygen. At some point it was discovered that the incidence was highest in the best hospitals. Of course, they were the ones endowed with incubators. Anyway, whatever the exact medical history, a cause was identified: Apparently the oxygen-rich atmosphere, in some babies, caused the blood vessels in the eye to dilate, rupture, and damage the retina: It was called retrolental fibroplasia (RLF) then, but now it's called retinopathy of prematurity (ROP). More recent explanations, as noted on the Web site for this condition, are:

The smaller the preemie, the bigger the risk of getting (ROP). . . . Very premature babies don't have properly formed blood vessels in the retina, the eye's innermost layer. Sudden exposure to oxygen as doctor's attempt to save these babies is believed to cut off further blood vessel formation. Then there's a backlash: Blood-starved retinal tissue sends out an urgent call for help that results in sudden growth of abnormal blood vessels, eventually causing vision-

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blocking retina scars and even detachment. To cut off that abnormal growth doctors use a laser to destroy part of the retina emitting the distress call. That destroys some working eye tissue in hopes of saving the rest, but it can't restore lost sight.

Every ophthalmologist who examines Deborah's eyes can see the ROP scars. Eric survived with partial vision, but was still technically blind.

But back in 1951, when the twins were born, none of this was known, although the cause was identified only a few years later. Precautions have since been taken to reduce ROP incidence, but its occurrence persists. In 1951 Joyce came home three days after the birth, which had been easy as births go. She bought a bulb-operated hand pump, set the alarm to wake up every three or so hours during the night, and extracted breast milk. It was refrigerated, and twice a week I delivered it to St. E's to be autoclaved and fed to the twins. They thrived on mother's milk and gained weight steadily. I was known as the milkman, and the nurses were all very much impressed by Joyce's output, which rose steadily and on the final delivery day was one quart and six ounces. About the third delivery trip, and hearing repeatedly how well the twins were doing, I asked our pediatrician whether it was necessary to give them so much oxygen, since they seemed to be doing so well. No one suspected that it could be harmful, but as a poor graduate student, I was paying for the oxygen, and I just wondered if it was necessary. The pediatrician said, "Don't you have Blue Cross/Blue Shield?" I said no, and she replied, "I will take them off, as they seem not to need it anymore." This is how medical practice works. A breakthrough discovery, like saving preemies with oxygen, leads to its intense utilization, but then side effects start to appear. I have often wondered if this action saved Deborah's eyes, and if it prevented Eric from being totally blind, as is common, I understand, for afflicted preemies.

I won't belabor what Joyce and I went through over the next months, as we gradually learned of Eric's condition and worried about Deborah, whose eyesight emerged unscathed, although not without residual evidence of scarring. Eric's physical development

was much affected by his blindness. He was late in learning to walk, and he skipped the crawling stage. Somehow that is related to seeing—seeing something you want and going after it to satisfy curiosity. But during that first year in our Cambridge apartment, months after Deborah had been walking we trained him to walk by holding his hands above his head and moving him forward.

By the way, during those years Eric and Deborah had a Cambridge pediatrician, whom they used to see regularly, and when necessary he did not hesitate to make house calls: It was T. Berry Brazelton, who subsequently became the famous pediatric medical author.

One day, standing, as he was able to do well, Eric stepped ahead on his own. Uncertain and wavering, he somehow got it. You cannot imagine what a thrill that was for him and, of course, vicariously for us. He could not have been restrained or stopped. He held his head forward, walked forward to keep from falling, and laughed and screeched with delight from one end of the apartment to the other. When the inevitable occurred and he fell, it dissuaded him not a bit. The self-propelled motion was a joy to him that had to be repeated incessantly.

Eric was very precocious. After moving to West Lafayette, we had great family discussions at dinnertime, and Eric filled them with questions. He had inexplicable insights. For example, one day at the dinner table we discovered that he could add any two numbers that were the same up to the numeral 10. He was only four and had not the vocabulary to articulate to us how he was able to do it. So, seeing an opportunity, I pointed out to him that if he could add any two numbers that were the same, he could add any two numbers, period. That intrigued him. “How?” I gave him the algorithm: If 2 plus 2 is 4, then 2 plus 3 is 2 plus 2 plus 1 is 5. Similarly, from 3 plus 3 is 6, you get 3 plus 3 plus 1 is 7. If  $x + x$  is  $2x$ ,  $x + x + 1$  is  $2x + 1$ . You can fill in all the gaps between the even numbers by just adding one to the output of his own algorithm, which his brain could activate but his mind was impotent to explain. It is a good example of the brain’s ability to develop skills that the mind cannot penetrate—a principle illustrated over and over in the study of experimental markets and decision making. He was fascinated and went into contemplation mode. The next day at the table he could add any two numbers whose

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sum was not larger than 20. So we talked about the ten-digit cycles, 1-10, 11-20, 21-30, etc. The third day he had it down pat and could add any two numbers ad nauseam.

Eric was a teacher's dream in school: He was well mannered (he inherited that from Joyce), learned things quickly, and was well liked by his classmates and teachers because he developed a great sense of humor and an upbeat attitude. He always scored well, which teachers love, because they can share the credit. He graduated from high school a particularly deserving National Honors Society scholar, and was in demand with colleges—they want to share credit for doing well by recruiting students who score well. He decided to go away for college to Macalister College in St. Paul, Minnesota.



A fundamental problem with educational institutions is that there is no direct means of determining their value added. The value added by a high school, a college, or its parts, like a semester, or a course, is the value of the output less the value of the input. A college may have a great reputation for placing its graduates, for having accomplished graduates, but that is valuing output. What was the value that went in? If the student input was carefully selected to be high performing, then the output is almost certainly going to exhibit high performance. But the institution's contribution is the value of the output less the value of the input.

Consequently, there is competition for getting the best input. This is good, but what is missing is clear and aggressive competition to create the most value added. That is the secret to creating wealth in the form of human knowledge just as it is in the economy.

If you go to Singapore or Hong Kong you will see why these city-states are among the world's most aggressive creators of wealth based on free institutions and the ultimate resource—people.

Every business enterprise stands in the winds of resistance to creating value added: the market value

of its output less the market value of its inputs. The difference is its profitability, resisted by the willingness of customers to provide high-enough revenue, and of suppliers to accept low-enough costs. If there is no profitability, there is negative value added, and the enterprise eventually fails. The world is crowded with people who are anti-business who do not understand this basic principle of economics: No positive profit means there is not any net value added. This is why the vast majority of businesses are *involuntary* nonprofit entities. An incorporated nonprofit foundation is *voluntarily* so, constituted to pay out everything that comes in. That is easy; it tells you why there is so little value-creating discipline in the Foundation world. And why it is so difficult to give away money intelligently, more difficult even than to make it.



Eric grew up in a sighted world and went to school with sighted students because the sighted culture assumed without evidence that anyone who was partially sighted and could read—he used large print special books and, later, a scanner that enlarged the print—belonged in the sighted community and there was no need to learn Braille. Interestingly, left to his natural self-propelling devices in Minneapolis, he independently discovered the blind community, choosing to be identified and become associated with it. He became an activist in blind organizations, which, as you can guess, were traditionally dominated, organized, and run by sighted people. All that has changed, and Eric was part of the revolutionary transition.

People unceasingly make a big mistake: They want to help people, and they think they do that with their transfer payments, but they don't; they should help people help themselves by facilitating self-development and self-empowerment and independence from transfer payments. We have never learned that lesson with poverty, that the poor need largely to be helped to help themselves. Lyndon Johnson's war on poverty was lost, battle by battle. The poor are as present as ever, relatively if not absolutely, and we still focus far too

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much on one-way transfers. Only self-help is sustainable. It's the right model for helping, and we don't seem ever to get it.

Eric loved the Twin Cities so much that, thirty-odd years later, he still lived there. One attraction was its celebrated system of public transportation, well suited to his needs for facilitating independence—it enabled him to help himself. He has had a career in Minneapolis in the Internal Revenue Service, starting out as an accountant, but with his personality, he ended up running the Public Relations section. What? Did you say the IRS is into public relations? It sounds like a contradiction in terms, but Eric has made it work. Who needs good public relations better than the IRS?

He and his wife Laura now live in Washington, D.C. We get together for dinner and theater on a more regular basis, and it is like old times.

Torrie is the one on whom our many family camping trips made an indelible mark and became deeply rooted. This led to her participation in one of the Outward Bound programs in the Elk Ridge region of Colorado when she was sixteen. I cannot imagine any two-week experience that could have been more transforming in terms of building self-confidence: Day in and day out wading ice-cold high-altitude streams with a light pack and rations, a 4x4 light tarp, hiking, climbing, in small teams in which it is obvious to the others if you are not pulling your weight, ending with a day and night totally separated from all other humans. You experience the very edge, and upon coming through there is the transformational sense that you can endure anything!

Torrie studied pharmacy and was most attracted to hospital pharmacy, where you can make the fullest use of your training in treatment regimens. Her first position was in the pharmacy department of a California hospital. One of her tasks was to track the prescription drugs each patient takes—doses, side effects—and make sure the physicians have not put patients on a cocktail of substances that are interactively bad news—the sort of specialty information that a hospital did not expect the general physician to be up to speed in knowing. But she soon learned the realities of how things work. She gets criticized for doing her job by questioning a particular combination of doses prescribed by one of the doctors. The head

of pharmacy told her: “When a doctor around here says jump, your response should be, How high?” She went into the Peace Corps and helped to set up a pharmacy program in St. Lucia, Caribbean. She met her husband-to-be, Jim Call, in the Peace Corps.

Jim and Torrie abundantly illustrate the principle that the global economy vastly expands the freedom to choose. In fact, it’s possible to live a great distance from that economy, appearing to be no part of it, even “reject” it philosophically, politically, and morally, so long as you *export something of value to that economy*. You can isolate yourself from it all but benefit enormously from the extent of its cost lowering reach. They moved to a remote area of the mountains above the beautiful San Luis Valley in Colorado. I first visited there in 1936, at age nine, when Mom, Dad, and I vacationed for two weeks in one of Snow’s log cabins, on the edge of Officer’s Ranch, many miles out of Creed (which had a lounge that claimed to have the original bar over which Robert Ford, who shot Jesse James, was himself shot in revenge). We returned again for two weeks in 1937. Visiting Torrie and Jim, I found the cabin where we had stayed in the 1930s. It was still standing, and the view of Bristol Head Peak was just as I had remembered it.

As a pharmacist, Torrie is highly employable, part or full time, particularly in regions that do not attract hordes of professionals and who aspire to drive BMWs. So they live remotely, choosing their lifestyle. But you have to export something, and they export pharmaceutical services and import vehicles, gasoline, books, solar panels, deep well-water pumps, earth-ship home-building materials, garden plants and seeds, camping fabrics, and gear much improved by global technology, cell phones, goats for backcountry packing, and so on ad infinitum in symbiotic dependence on the global economic engine.

I met Carol in 1972-73 at the Center, where I was a Fellow. She was a research assistant on medical economics for Victor Fuchs, who was also a Fellow that year. We became good friends, in time lovers, and I commuted regularly on weekends from 1973 to 1975 to the San Jose airport from Pasadena/Burbank. With many reservations—one for each degree of Arizona heat above 80—she moved with me to Tucson, where she still lives.

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We bought a home on Maria Drive in one of the few remaining residential areas in which the home builders had left the original vegetation undisturbed, tucking each home in among the trees, shrubs, coyotes, javelinas, roadrunners, and a paradise of other birds. (Bird watchers descend upon Tucson from all over the world to observe a great variety of Western and Mexican birds.) In Tucson, about the first week of July, and continuing to and sometimes through September, all hell can and often does break loose in monsoon lightning and rain storms. Early on, living in that house, Carol and I were sitting on the covered patio and watching a storm sweep in from southwest of the city past the Santa Rita mountains, envelop the valley in a deluge with great, crashing, cloud-to-cloud and cloud-to-ground thunder and lightning. It seemed like hundreds of lightning bolts, and indeed the next day the *Tucson Citizen* confirmed that Tucson Electric Power (TEP) sensors recorded more than 900 ground strikes. It seemed like Kansas, and the farm, with mountains replacing the “prairy erth.” This became my adopted homeland.

Since the house was on a rocky foothill lot, there was no space for a proper garden. But I could plant tomatoes in the spring at the edge of the back patio facing the south—never buy a house in Arizona without a wide southern exposure—and in late September, sugar snap peas with vines reaching to the roof in the warm winter sun, but able to survive frosts with minimal protection.

During our first two years in Arizona, Carol was in the M.B.A. program in the Business College; it was the accounting and finance parts that stuck, and she went to work for TEP in June 1977, immediately after we returned, delayed by low water, from a Grand Canyon whitewater trip with Ken Slight.

I found Carol’s job at TEP of unceasing interest; it gave me a direct plug-in to an intriguing world. She kept me current on that fascinating world—shades of McClure Stilley. TEP’s president had a background in finance. An electric utility has a huge cash flow because it is capital intensive; the wage and material bills are small relative to the services of the capital stock, which is long-lived, with thirty-year plant investments. That cash flow is the substance of financial market creativity. TEP became known as “the finance company with a utility subsidiary.” Why? Here are a few reasons.

Carol's first task was cash management, but she soon graduated to managing TEP's cash flow. So they cleared check payments to suppliers (accounts payable) through an obscure South Carolina bank. That slowed payment deliveries—increased their “float,” as it is called in monetary economics. Meantime, for accounts receivable, all larger sums are wire transferred, or even courier delivered. Speed up incoming payments, slow down outgoing payments. This swells working capital funds to invest to increase return on total capital. Those were the days when a great many firms were not aggressively managing their cash flow and were much too insensitive to the concept of opportunity cost. Carol knew it well, and she managed the flows to generate as much working capital for the company as the system would allow.

Again, suppose a utility is required to install \$100 million of pollution abatement equipment. To sweeten the incentives for purifying the environment, these investments are allowed to be financed from tax-exempt revenue bonds at lower interest rates. So you finance the equipment as far in advance as is specified under the law, and reinvest in bonds at the higher interest rate on taxable debt instruments, selling them as you need cash to meet construction payments.

And then there is the famous “two county rule.” This rule allowed any utility, all of whose operations are in no more than two counties, to finance operating assets as well as emission abatement assets with tax-exempt bonds. These special exceptions get into law when some legislator puts a rider on a bill (its called “pork”) to help one of his constituents somewhere—who knows where; it may have been Vermont. But anyone can benefit from the provision by satisfying the fine-print conditions. The downside for the economy is that it creates incentives for people to invest to change their operations in order to benefit from the rule rather than to create new products and services. All sorts of smart people, like Carol for her company, are encouraged to seek out these high financial return margins that arbitrage the tax laws, but fail utterly to create new economic value for you and me. They are all doing their jobs well, but they are afforded bad incentives; it's the rules that are misguided and engender wasted resources. This is the overriding justification for simplifying the tax laws, and closing all these wasteful loopholes for very narrow interests.

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One of Carol's and my major mileposts together came in early 1980 when we adopted—the truth is we were adopted by—a forlorn and homeless puppy. I was driving our 1972 Scout II south on Park Avenue on my way to the university. Crossing Grant, I fortuitously ran out of gasoline—I had been having trouble with a faulty gauge on a newly installed oversize tank and had not allowed enough margin for error. I rolled to the curb just south of Grant and left the Scout. A black puppy with a few white markings emerged from underneath an old car with flat tires parked in the driveway of a run-down multiple-unit dwelling, smeared with grease here and there on its head and body. It followed me to the corner. I sped up, not looking back, thinking it would return to its place, but I could feel that puppy against my heels. At the station, I got a can and gas. She (I was already noticing what I had to deal with here, and I always liked girls) was terrified by the cars wheeling in and out of the station, so I moved her out of the drive paths and began walking back, the puppy hot on my heels. I rounded the corner back at Park, returned to my Scout, and poured in the gas.

It was time to go, but the pup was still there at my heels, tail wagging. What the heck: There was an old red sweater in the back. I got it out, placed it on the floor of the passenger side, and lifted the pup onto that sweater after wiping off some of the grease. She lay down, happy as a pig in grease, and we left for my office. At the office, I put her on the sweater on the floor to the left of my knee-hole desk and pulled open the bottom drawer just over her head, so that it was a bit like she was in her own roofed home. She was very contented and happy. I called Carol and told her the story in sequence, revealing only at the end that I had brought the pup to the office. I described the pup and said that we needed to decide what we were going to do. Carol said, "I'll drive over on my lunch hour." When she arrived, Carol had already selected a name: Our new acquisition was no longer just a puppy—she was Lucy.

Our neighbor across the street was Harold Jarcow, whose son Jim was a veterinarian—one of the very best in town, but more of a research scientist than a retail veterinarian; he was into zoo animal diseases, tigers and sick snakes, so dogs were easy because he could talk with them intelligently. Jim became Lucy's vet. We had Lucy,

and now she had a doctor, who pronounced her in good health and said he thought she was part Australian shepherd. What was most evident to us all was that the rest was Labrador retriever. A year later, Lucy acquired a companion. We had visited a pet shop looking for a dog bed. The shop had an Alaskan malamute pup, she and Lucy were introduced, they bonded with each other and us, and we drove Lucy and Sophie to their new home together in the foothills. Lucy lived until age eleven; Sophie, until age fourteen. They were our first children, our only daughters, and we loved those girls as if we had whelped them ourselves.

Those were exciting times for Carol and me, but the biggest event was Joshua, born on August 31, 1981—a good year for us all. She returned to work after a few weeks' leave, and I helped out at home, becoming a home parent. It was back to the breast pump, except that after thirty years the technology attached an electrically driven pump to the nipple extraction device. We only needed enough bottled supply to get through each workday as Carol nursed him the old-fashioned way mornings and evenings, nights and weekends.

After seven years at Arizona, I was qualified for a sabbatical leave in January 1982, so I applied for it, planning to work at home on various research papers and writing projects during the spring semester. Classes ended in mid-December when Josh was three months old, and I would be a home parent until the following August.

I remember those months working at my desk with Josh asleep in a body sling around my shoulders and neck. Mothers log lots of body contact with their babies nestled in their arms, and I was experiencing that feeling as a father. He was with me constantly on weekdays, and I had the warm pleasure of nourishing him, if only through a bottle as a conduit to his mother's milk.

Josh was an unusual child in that he could hold his own with adults in conversation even as a preschooler. He never seemed to be bored with adult conversations going on around him, such as when eating out in restaurants, which sometimes can be hell for both kids and adults. In those early years he and I went fishing together for two days in the motor home we had purchased. We talked a lot, and on the return, just as we reached Camino Escalante and made the turn down the hill toward our cross street, Camino El Ganado, he

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turned to me and said, “Dad, you know, I like there being just two.” I realized how true it was for him, just two, one-on-one; that was very insightful for a preschooler. He had the same involvement with his mother, but on completely different topics from those that engaged us. Josh is a people person—How do people, not things, work?—and it’s all bound up with expression, as it is in his music. He learned to play the guitar; he had some good instruction, but much of it was self-taught. He can’t read music, but he can play, compose, and create—so who cares about reading it? I learned to read music, but could not play worth a tinker’s damn. It was a worthless undertaking for me because I could never create anything with it. That is where the action, the satisfaction, and the communication lie. He just rolls it out of his fingers onto the strings, and the strings connect directly to processors in his brain, as if he were talking to you with words. He composes songs in his head and plays them directly out of storage. Josh is sort of spacey sometimes, as I am, but in a completely different way. Brains and minds are so different in ways that are alike, or maybe I should say alike in ways that are different.

I am spacey, yes, and I have difficulty emerging from deep mentalizing, but people don’t know it. I reply to them as if I am in their world when I am not. My autopilot brain resists being interrupted, clinging to its communication with itself, while pumping out recognition signals to ward off the invasion. It appears that this makes me hard to live with. But I had two very tolerating wives, bless them, and they stuck it out for twenty-five years each. They were as different as two people could be, or so I thought. I was wrong, for then I met Candace, and she is as different from them as Carol and Joyce were from each other.

I met Candace at the meetings of the Association for Private Enterprise Education. The Association has an annual Adam Smith award, and I had been chosen to receive it by the board. Following my after-dinner address, replete with overhead transparencies, she was one of several people I talked with. I learned later that she was on the board, and the board had chosen some guy she never heard of for the award. I subsequently was asked to join the board, and I saw her once or twice a year at these meetings and at the AEEE conferences.

We ended up friends, and after a few years, lovers, and I am married again—for the duration, perhaps much more than twenty-five years. My “contract” with Candace is to live to 106. It might even work, as Joseph Lomax, one of my ancestors lived to be nearly 105 (1809-1914). We rented a U-Haul, and I moved her myself from Pueblo to Tucson. We towed her car behind, with Oscar sitting in the driver’s seat every mile of the way. Meet Oscar: He is a boxer, and a great guy. At this writing he is fourteen and deaf as a post, but happy as a pig wallowing in mud and excrement. With all our travels, he lives with Carol and her yellow lab, Zoey. They often have guest dogs—three or more; it’s bedlam. Oscar hangs in there with the youngest of them. Oscar has become my role model. [He died after I wrote these lines. He had a series of strokes, lost consciousness, and then recovered. At one point he got up, retrieved his leash, and wanted to go for a walk; there’s nothing like dying with your boots on!]

Candace and I work closely together almost daily, planning and executing our events, of which there are many—panels, lectures, interviews, roundtables, conferences, and so on. She’s good at finding out what people think they want from me, giving them feedback, and working out something that fits everyone. I can’t do that on my own, but Candace and I are learning how to do it together. She knows what I can do and has a sixth sense for relating it to the needs of diverse sponsors and audiences. For example, the first year (2003-4) that I was the part-time visiting Rasmuson chair at the University of Alaska Anchorage there were dozens of requests and invitations. She would ask each what they had in mind for me to do. Typically, the response would be that I was to give a thirty-or forty-minute talk followed by questions. She might say, “That’s not the best way to make effective use of Vernon. We need a way to find out early, maybe up front, what questions are on people’s minds and have Vernon build the talk around those questions.” She evolved this approach by noting that the Q&A sessions at the ends of formal talks often were the best parts of the meetings; there was a spontaneity, a freshness, and more important, a direct audience involvement that made those sessions high points. The idea was to find ways of starting that experience earlier in the session. Sometimes it’s done with readings and questions in advance. This works best if I am a guest speaker in

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somebody's regular class—we've done two dozen or more of these. In the best of these the instructor takes written questions in advance and the students are *graded* on the quality of the questions. (Bart Wilson and I teach classes together, and we started doing this in our classes. Think about it: Good questions are harder to create than good answers, and you never get good answers if the questions are not thoughtfully stated. The professional skill of asking good questions normally comes late, but why shouldn't it be nurtured at the beginning?) It can also work in other settings in which people are given some advance information on me and are asked to pose questions. Another approach is for me to talk for ten or fifteen minutes on issues relevant to a particular group's interest and then move quickly into fielding the questions.

My favorite was a workshop for school teachers sponsored by Steve Jackstadt's the UAA Center on Economic Education. Candace and I took three of the sessions. There were readings for each session. Candace started each session by getting the teachers to write or state their questions; then I organized my talk around the questions. The best for me came last, on the third day: She had them interacting in real time, writing summary questions on the whiteboard (that really helps since my hearing is deteriorating more than my seeing); then my talk built directly on that experience. It was fun.

But better than all of this is our intimacy. No wonder I love her so much.

In Tucson we like to go dancing. As the fellow said, there are just two kinds of music: country and western. It took some effort to get Candace to overcome her reluctance to believe she could learn C&W, but she did—fast and well: the two-step, swing, country waltz, and still learning. She is my favorite partner. We have friends we see at the Maverick, a forty-six-year-old institution in Tucson that has survived two fires.

Mother, father, wives, daughters, and sons—I love them all as painted, a portrait that they might not recognize. There is much more that could be said, but it won't be.

You have all the news that's fit to print. Rest with it in peace.

It's been discovery all the way, and in that adventure I never left my homeland.



*2002 Vernon and King (Carl XVI Gustaf of Sweden) at Nobel ceremony.*



*2002 Vernon's Nobel Banquet toast affirming the dignity of human kind.*

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*2002 Candace and Vernon at Nobel Festivities.*



*2003 Vernon and Candace, Sydney Australia 2003*

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*2004 Vernon and Candace, Quinahagak Allaska fish processing plant.*

*Postscript*  
**On Faith in Science  
and Religion**

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This memoir has frequently touched on themes in science and religion, particularly in the home and school atmosphere in which I was educated; in that world it was commonly believed that the two are inherently in conflict. In this post script I want to write briefly about how I see faith as it is manifest in scientific and religious experience. “Faith is the substance (*hypostasis*—realization, being, reality) of what is hoped for and evidence (*elenchus*—proof, inner conviction) of things not seen.” (Hebrews 11.1)

My early exposure to religion was influenced by the prevailing materialist-agnostic interpretation of science, but this was the intellectual side which was always tempered and qualified by deep secular and Christian sources of poetic inspiration that prompted an inner private experience. Although Materialism is alive and well in the rhetoric of scientists and other intellectuals today, I believe science itself has undermined this belief system, making it obsolete, and there seems to be many today who recognize that there is no inherent conflict between science and religion. Each can be at peace one with the other. Public debates, however, are polarized on the issue of design versus a naturalistic rule-governed order, particularly as it affects the content of public education, a content increasingly controlled from top down bureaucratic directives to which all must conform and therefore destined to generate heated controversy.

The basic materialist faith was that physical science would enable us to determine the ultimate constituent building blocks of matter, and in that discovery we would come to understand our universe at a depth that would subvert and replace any need to appeal to

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some spiritual or mystical entity to comprehend human existence. This view was implicit in my childhood belief—symbolized by my father’s bookcase—that everything was knowable.

In my view this conception of the Universe started to unravel with two of Einstein’s famous 1905 papers: one on the special theory of relativity, the other on the photoelectric effect. An implication of the first was the equivalence of energy and matter, leading to a fundamental new understanding of classical physics as well as practical nuclear science; it also led to his 1916 general theory of relativity which later formed the basis for the cosmology of an expanding universe starting with the Big Bang of creation. His second 1905 paper established that energy came in discrete packets that were governed by probabilistic uncertainty, won him the Nobel Prize in 1921, and jump started the field of quantum mechanics. The new quantum physics implied a reality of “spooky action at a distance” that Einstein could never accept. He saw quantum physics as only provisionally correct until the theory had been made more “complete.”

In 1929 Hubble discovered that the stars and galaxies of the Universe are expanding in all directions at velocities that increase with their distance from us. The most prominent implication was that the universe had a single point of origin, and in the forties Fred Hoyle dubbed it appropriately as “The Big Bang.” For perhaps thirty years after Hubble’s observations, scientists were resistant to the idea that all matter and energy in the universe must have once emanated from a particular historical point in space/time: mathematical physicists called it a “singularity,” massive compared with the singularities sprinkled in all directions throughout the universe like Swiss cheese, and associated with imploded stars, or black holes. Why this resistance? Well, the Newtonian idea that the universe had always existed seemed psychologically more comforting and natural—no beginning, no end. If there was a beginning, then science—the search for truth in physical phenomena—had to face up to the psychologically overwhelming fact that before the beginning there was nothing: no matter, no energy, no space, no time, just a monstrously pervasive *nothing!* If the universe had always existed, then it seemed that there was room aplenty for Einstein’s impersonal God, the Deism

of natural rules and order and beauty to say nothing of agnosticism and atheism.

The ancients had understood their world in terms of Genesis (1.2). Before creation there "...was a formless void and darkness covered the face of the deep..." while in our day, the time of the Big Bang, we have come to understand our world as a massive singularity at which the equations that chart everything from stars and dark matter to quarks have no finite solution.

The ancient question of human existence, "Why is there something rather than nothing?" could be avoided if this *something* that we observe everywhere was thought to have always been—in direct contradiction to Genesis and to Hebrews (11.3), "By faith we understand that the universe was ordered by the word of God, *so that what is visible came into being through the invisible.*" But the new question for science, implicit in the Big Bang theory, "Why was their nothing that became something?" seemed to deepen the state of our ignorance and mystery. The *mystery of origins was beyond any conceivable science*, and the whole apparatus of hypothesis testing. Creation could be located in history, and in the limiting state of equations that have again and again proved to have enormous experimental and astrophysical predictive power when they were used to locate events in our observable world of time, space, energy and matter. At its best, these developments can only be described as embarrassing for classical materialism. That the materialist rhetoric is little changed tells you how deep its faith penetrated.

Beyond science is a personal experience we all share, the sense of awe and mystery of existence. I claim that this experience must count as an observation even if it fails the usual tests of science. That power to inspire awe is expressed in Carruth's wonderful lines:

"Like tides on a crescent sea beach,  
When the moon is new and thin,  
Into our hearts high yearnings  
Come welling and surging in,  
Come from the mystic ocean,  
Whose rim no foot has trod,  
Some of us call it Longing,  
And others call it God."

Materialists just ignore any references to experiences of awe and mystery. Gibran (*The Madman*, 1918) may have had such dismissals at heart, in saying, "... we heard a voice crying, 'This is the sea. This is the deep sea. This is the vast and mighty sea.' And when we reached the voice it was a man whose back was turned to the sea, and at his ear he held a shell, listening to its murmur. And my soul said, 'Let us pass on. He is the realist who turns his back on the whole he cannot grasp and busies himself with a fragment.'"

What spooked Einstein about quantum theory was that two quantum particles could interact instantaneously no matter where they were located. Thus if one particle is perturbed, there is a synchronous instantaneous effect on the other. This seemed to violate special relativity by allowing physics to embrace speeds greater than that of light. The best verbal description that could be mustered of this was the concept of particle entanglement, a phenomenon subsequently found over and over to be consistent with indirect experimental observations, which are the scientific "...evidence of things not seen." (Hebrews, 11.1) So even if the theory is "incomplete" and due to be improved upon, scientists now have faith that quantum-spooky interconnectedness will be retained.

Yet no one was a greater champion than Einstein of the principle that things are not as they seem. His general relativity theory created a space that curved back on itself in a four dimensional space-time continuum. Incredibly, as others would show, that space curvature allows for the theoretical possibility of "wormholes" through which various points in space are accessibly connected by short cuts that do not violate special relativity but simply bypass it. This possibility is contained in extensions of the original theory that have survived numerous experimental tests where observations could be brought to bear on its predictions. Contemporary theorists have learned to take such incredibility at equation, if not face, value. After all, in less than a hundred years after the special theory and the photoelectric effect we encountered engineering miracles like atomic energy and lasers. So we should go easy in rejecting wormholes, entangled universes and teleportation as the stuff only of fantasy science fiction. Indeed, teleportation in the sense of information transfer, has been achieved

in atoms, and seems likely to be achieved with complex molecules. At quantum levels if you have copied all the information in an object, you have teleported that object. As with atomic energy and lasers the challenge in teleporting a more complex object is in the engineering, not the principle. These fairytale-like stories are now serious physics for many scientists.

Science is about physical and biological mechanisms; about the discovery of how things work; about theories that describe and can predict observations that we experience through instruments, as the indirect “evidence of things not seen.” Science keeps getting better, exponentially, in this task, on a scale beyond anything that could be believed possible in 1905, let alone at the beginning of the Christian era.

But science can neither find nor disprove *purpose*. Prominent scientists have claimed that science shows that there is no purpose in the universe. But there is a difference between failing to find something and concluding therefore that it does not exist—the absence of observable evidence for purpose does not constitute evidence for the absence of purpose. Religions everywhere have sought to comprehend a universal human experience: a longing born of high yearnings that come welling and surging in, that do indeed come from a mystic ocean on whose rim no foot has trod.





