Chapter 11
Astronomy

I don't recall the date, sometime in my freshman year, on which I became fired up by astronomy. That afternoon I raced the 20 blocks into downtown Philadelphia to invest all of my savings plus the miserly monthly allowance my father gave me, on a make-your-own telescope kit. By the next morning knowledge of the very existence of that kit had evaporated. It was discovered again, quite by accident, at the end of that year while I was packing up to move out of the dorm. For half an hour I sat on my bed with the kit in my hands, trying to figure out what it was doing in my room. The mystery wasn't cleared up until 3 months later. As I was enrolling in Fred Elasasser's Cosmology course it all came back to me.

It was generally believed , and Fred knew it , that most of his original ideas on cosmology came from science fiction novels. This isn't a criticism: that alone made them better than most of the theories of Hoyle, Bondi, Gold, Sciama, Rees and others. Fred maintained that the universe was formed over two billion years ago when a heavier and a lighter substance separated. The viscosity of each, or both, created a vortex that, under the effects of a cosmic wind coming from somewhere or other, fragmented the primordial substratum into spinning hydrogen clouds which became first the galaxies, then the stars.

Well, we all have to make a living somehow.

Despite being chairman of the Astronomy Department, Fred Elsasser could barely keep body and soul together on his

professor's salary of $10,000 a year. Contracts with the Office of Naval Research brought in another $4,000. He'd written one of the standard undergraduate textbooks in the field; the royalties from this guaranteed him $2000 a year for the indeterminate future. His wife was on the department payroll as a part-time research assistant at $250 per month.

All of that put together may sound like a lot of money, even after one tallies up taxes, two children in Friend's Select and Penn Charter high schools high schools , a third now a senior at Zelosophic U. on a faculty scholarship, his mother in the University Hospital getting virtually free medical care, and a miscalculation on the stock market that set him back a whopping $20,000.

What needs to be factored into this equation is what it cost Elsasser to live in a style commensurate with his dignity. Then one begins to understand why he went to every faculty meeting, cocktail party and dinner, why the electric typewriter in his home study came from the Astronomy office and his filing cabinets from the basement of the Math-Physics Building, why he confiscated all of his computation notebooks, legal sized scratch pads, and dozens of reams of paper from the department's supply room, why - (but that infrequently) - he sometimes heisted books from the Zelosophic libraries, why he revised his textbooks every two or three years, why he was obsessed with publishing an article of some sort in the Astronomy journals at least four times a year.

To add to his burdens, Dr. Elsasser felt that he had to live in Swarthmore. No one put pressure on him to live in Swarthmore.

None of his peers, no college administrator ever said to him , " Dr. Elsasser, we think it would be good for your career if you lived in Swarthmore". He may or may not have lost his position as chairman if he'd lived in North Philadelphia, surrounded by cockroaches, rats and festering spit. It's unlikely that anyone would have come to his monthly cocktail parties; indeed, it would have been too dangerous. Yet it is a fact that most of his colleagues at Zelosophic felt better about him because he did live in Swarthmore.

Fred took great pride in his ability to detect intellectual ferment in this crusty suburb where most of us detect nothing at all. He rationalized that the engulfing silence was good for his peace of mind. He always made it a point to let people know that he lived in Swarthmore, where he'd discovered his choice suburban nugget at the bargain price of $75,000; dirt-cheap for the late 40's .

Yet there were auxiliary costs which should not be ignored. Because of the superhuman boredom of living where and as they did, Fred and his wife found themselves making long expensive trips just so they could escape. Usually they went to Vermont, where they were quite happy wandering about the woods, or to California, Hawaii, South America and places in Europe where Fred could spend many impassioned hours staring through telescopes.

The point of this long disquisition is that, in spite of all his perks, Fred Elsasser saw himself as an unfortunate victim of an unjust society, a servant of science reduced to abysmal poverty . It

depends largely on one's point of view. He was correct, if one quantifies poverty as

$$\text{Poverty} = K \exp\left(\frac{\textit{Ambition}}{\textit{Income}}\right)$$

, K being some appropriate constant of proportionality.

The Elsassers kept a Bechstein piano in their living-room. Neither he nor his wife could play it . He wasn't even fond of music, but he kept it there so he could force his three children to practice on it. When he traveled with his family to Africa in the 30's as a part of a team set up to witness a solar eclipse, they brought back a job lot of tourist junk, AKA primitive art. Largely untouched, it lay scattered around the house. This was something of a compulsion with all of them. Whenever he, or his wife or children went away on vacation they always brought back loads of artifacts to be dumped and abandoned in convenient locales.

As department chairman Dr. Elsasser thought it necessary to maintain a bigger and more impressive home library than that of any of his subalterns. In 1948 he'd invested $2,000 for the complete works of Euler,the great Swiss mathematician/astronomer/physicist . All 40 volumes of Euler's *Opera Omnia* stood, prominently displayed on the dining-room mantelpiece and in boxes on both sides of the fireplace.

Elsasser didn't know any Latin, but the sight of all those Euler volumes, face-to-face across the room with a floor-to-ceiling bookcase holding books on General Relativity written in a dozen languages, made a profound impression on the many visiting eminent scholars from abroad that were ever being put up for short stays at his house.

The novelty wore off after a few years, and he decided to get rid of the Eulers. Some people thought that he'd sold the whole edition as deadweight, but it was more reliably rumored that he'd knocked down the lot of them at an enormous loss to a colleague in some third-string college in the Great American Wilderness, where even a second-hand Euler can pull rank.

One shouldn't draw the conclusion that I consider him a fraud; far from it. He knew his cosmology all right, and what he didn't know he could make up better than anyone else. Most of cosmology, and even much of astronomy, is like that. Even the commonly accepted distances to many of the stars have to be doubled every decade or so. Had he absorbed the contents of 3% of all the books in his library he could still be rightfully considered an authority in 4 or 5 fields. There were books on astronomy and physics and mathematics and chemistry; quantum chemistry, nuclear physics and bacteriology ; space exploration; on astro-physics, astro-chemistry, astro-geology, astro-biology ; on cosmology and cosmogeny; and the proceedings of dozens of symposia on all of the above. The same book translated into 20 different languages was prominently displayed . Long shelves of bound periodicals in several scientific disciplines reached without a break into the last century.

Other bookcases held books on philosophy, psychology, entomology, ship-building, mountain climbing, Persian history, Lamaism, Hindu literature, primitive religion, kinetic sculpture , modern dance, city planning and many other things . Nobody who visited his home in Swarthmore would ever be allowed to leave

without having gotten the impression that he'd been in the presence of a man of diversified interests and vigorous mind. Entire encyclopedias were on display, next to complete editions of Bernard Shaw, Mersenne, Chebyscheff , Charles Saunders Peirce , Engels, Paracelsus, Flamsteed, Herschel, Hubble and Gurdjieff . He may even have had a copy of the Isagoge of Pophryry .

It would have taken him a lifetime to absorb an average of 10 pages from each of his books. A small number had no doubt been studied from cover to cover. Somewhat more had been browsed at one time or another. The vast majority were, and would always be, unread. Whatever drove him to possess them could not have been dissimilar to the compulsion that led Alexander Misnomered The Great, to conquer lands he had no intention of visiting.

All of this cost money, a real case of chickens coming home to roost. If Fred expected students to pay $50 for his astronomy textbook, (an astronomical sum for the 40's) , it was only right that he fork out equally inflated sums to maintain the prestige of his home library. Apart from the copious stream of review copies and allowing for discounts, his book budget must have been $3,000 a year, swallowing up all of his wife's salary and beyond.

It is a dependable feature of the academic game that one tries to estimate how much knowledge the other guy has. No-one can really know what's in someone else's head, so appearances count for a great deal. Visiting the Elsassers for the first time in 1950, I had to acknowledge the soundness of his Bibliothecarean investment. It was my first attendance at one of their famous cocktail parties. Even as I stepped in through the front door ,

Fred's library reached over and poked me in the eye. All the other graduate students and colleagues were shuffling around the living room as if they'd been kicked in the balls.

The ostentation of Fred's exhibited library served many a useful purposes: silencing criticism; arousing envy; getting him government contracts; and keeping him in the chairman's seat of Astronomy. As I came to know Fred's library better, I began noticing certain peculiarities. It was strange that an astronomer's bookshelves should hold no detective novels, science fiction paperbacks or magazines, crossword puzzles or pulp of any kind . It's well known that scientists blow off steam by consuming this sort of reading matter in large quantities. Had I at last encountered so high-minded a natural philosopher that he experienced no need to seek relief in such trash? Science had trained me in skepticism; and my skepticism was soon rewarded.

During one of his parties held in the spring of 1951 , Fred invited all the guests out onto the lawn to inspect a new solar telescope. I remained behind. An opportunity like this would not come again. Once certain of being alone, I ran up the staircase to the second floor and quickly mounted a ladder to the attic.

The floor space was sizable, although the many cardboard boxes piled up in stacks around the floor made it difficult to move around. Most of them were filled with science fiction paperbacks and magazines. Next to these stood row upon row of boxes filled with comic books: *Captain Marvel ; Batman; Superman; Spiderman ; Wonder Woman; Mickey Mouse; Donald Duck; the Spirit* ; horror comics; sadistic comics; infantile comics; sentimental comics :

just about anything available at the time. Unlike the books downstairs in the living-room, one had the impression that these had been re-read numerous times. Everything was classified by date and title, so that Fred would have no trouble in retrieving them .

Boxes holding paperbacks of pulp fiction were piled in a back room: *Son of the Viking ; Bloody Demesne ; Dragon's Vengeance ; New Orleans Vamp ;* **and the like. My curiosity aroused, I purloined** *Pagan Thunder* **and** *Whip of Lilith* **. Then I returned quickly to the first floor and hurried out onto the lawn to join the others.**

A week passed before Fred asked me to join him after class for a cup of coffee at the Student Union. Settled into a booth we talked astronomy for twenty minutes or so. Then Fred lowered his voice and asked me, in a tone of deep concern, if I'd taken these two books. He wasn't angry, he just needed to know. I confessed up and apologized; they would be returned immediately.

No, that was all right, he said, waving his hands with impatience. - I could keep them. He merely wanted to be reassured that no-one else would know where they'd come from. Terrified I explained that they'd already been lent to Bob Boolean. There was no point in telling him how we'd had a good laugh at his expense. Bob had been told the full story, complete with descriptions of Fred's bookcases in the living-room and the boxes in the attic. Dr. Elsasser buried his head in his hands and trembled from side to side:

"It's nothing to be upset about !" , I assured him, every bit as upset as he was , "I read comic books all the time!" Once more he begged me never to tell another soul. He at least had my word of honor on that score.

Alas, human nature being as it has always been, Bob Boolean spread the story all over campus. Elsasser felt deeply humiliated, which was a bit silly as nobody gave a damn whether or not he read trashy fiction as a hobby. Yet his fears may not have been without foundation: one of his contracts from the Office of Naval Research was not renewed in April of the following year. This could not, by the wildest stretch of the imagination, have been related to the revelation of his extra -curricular reading, yet it was unavoidable that he should think so.

The story, apocryphal at best, made the rounds that the odor of burning comic books hovered over Swarthmore for three days and nights like the wings of the Angel of Death. A ripple effect also made its appearance on my final grade in Cosmology, as one can see from my college transcript.

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