HENRY H. GROSS

Cubeworld

I · CRISIS

"Geometry Rules."

This angular axiom, flanked by straightedge and compass and inscribed in aluminum above the arched entrance to the Planned Planethood Institute in upper New York State, passed briefly over my head as I was ushered inside by a pair of armed and uniformed federal agents.

They had been polite as butlers and as unyielding as boulders when they'd rousted me from bed at the state university campus, where I was chairman of the Communications Department and, some liked to think, internationally recognized as something of a media expert. All they would tell me was that my country, indeed my world, needed my immediate services—along with those of several dozen other specialists. I must come at once. No, this was not a volunteer position. Thank you, we'll wait.

I dressed, told Sarah, my wife, not to worry—a statement for which I had no basis whatsoever—and kissed our daughter, Rebecca, gently on her cheek as she slept. Then I followed my escorts into their long dark vehicle and let myself be transported some fifteen miles to the rustic headquarters of Planned Planethood—an organization that had been in existence for less than two weeks and which was yet a virgin to the greedy glare of publicity. This was in fact precisely the state of affairs I had been called upon to reverse. Indeed, as I was to learn, the very survival of our species depended on all 5.1 billion of us knowing about Planned Planethood and its objectives within a matter of weeks—and then following its directives to a T. Or at least up to humanity's theoretical "cooperation threshold," which Planned Planethood had already calculated to be 79.36 percent.

I was led down a corridor, up in an elevator, and then along yet another corridor to a door marked "Operations Room." There I was greeted by a large man with a dynamic smile and curly gray hair who I recognized immediately as the renowned and respected Mexican statesman, Rufus Cortez, a figure as famous for his global political machinations as for his humble insistence that folks of all stations call him Rufus. He shook my hand and invited me into his large, ad hoc headquarters, in which were assembled some forty-odd men, women, and teenagers of varying nationalities, staring at me as if their proceedings had been pending solely upon my arrival. Rufus gave me a ruddy smile, dismissed my keepers with a wave, and introduced me to the crowd. "Most of you have heard of William Lindsay, who herewith completes our primary team," he said briefly. "Besides teaching, he's chief media consultant for the United Nations, as well as public relations advisor for Iceland, Venezuela, and my own country, Mexico. I know him as well by Secret Service dossier. I'm sure you will find Bill as trustworthy and superior as any of yourselves, who of course received similar scrutiny before being selected for this crucial international endeavor. Naturally, we have assembled the world's best for this most awesome of all tasks facing us." To me, he added, "Welcome, *amigo*."

"Thank you," I said, still not knowing why I'd been invited—if invited was the word—to this particular party. I ran my fingers along my unshaved cheek and waited for Rufus to continue.

"Our planet's very survival is at stake," he said and pointed to a large chart on which had been rendered a sketch labeled *The Salton Mass*. "As you can see for yourself."

I looked at the drawing, recognizing our solar system but drawing a blank on the nearby arrow with the crosshatching on it. "Can't quite say as I do," I admitted.

Gesturing to a pretty young lady who blushed and lowered her eyes, Rufus elaborated, "We've named it, naturally, after Maureen Salton, who discovered it just a couple of weeks ago using a new computer algorithm she invented. Maureen is an astronomy student doing graduate work at Harvard and something of a prodigy, as well."

I nodded politely to the young woman.

"Apparently," Rufus went on, "a massive cloud of superdense particles is surging toward our solar system in a trajectory that

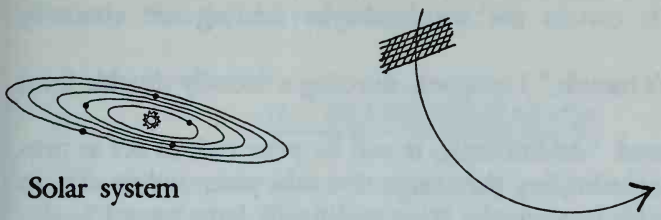

Figure 1 The Salton Mass

threatens to profoundly affect the gravitational equilibrium of the entire system before it continues off into the universe at large. Ms. Salton has calculated, and others have since confirmed, that unless we take drastic action promptly, this gravitational tsunami will cause the orbits of our system's planets to wobble and change direction. This will cause calamitous results on Earth, including climatic and meteorological disruptions, agricultural chaos, and possible orbital collisions, for example, with material in the asteroid belt.

I frowned, thinking of my family. "Sounds like a hell of a mess," I said.

"Getting hit with a rock the size of Florida would indeed be a mess," he agreed. "However," he added cheerfully, "we don't intend to let our planet slide down the cosmic tube without one hell of a fight. To that end, red tape has been cut to shreds in every government in the world in order to assemble Planned Planethood. By unanimous agreement, I have been appointed Chief of Operations, with unlimited emergency powers to meet the crisis. In addition to Maureen, who will be functioning as Planned Planethood's Chief of Astronomy, we have gathered an international team of experts in many other fields, including seismology, agriculture, oceanography, management, economy, transportation, demolitions, military affairs, and so forth. You, Bill, are to be our Chief of Communications, responsible for the crucial task of coordinating the

minds of over five billion people and seeing to it that everyone knows what to do—and will *want* to—when the time comes to do it. Equally important will be rumor control. IBM has already initiated emergency production of over five billion inexpensive voiceprint sensors that can be attached to any radio or TV set. Thus, people can be certain the words they're hearing are verifiably yours."

"The horse's mouth," I quipped, drawing a friendly chuckle from the group.

Rufus beamed. "Additionally, it will be your task to act as project historian, chronicling the events that take place and issuing an official report on it when the crisis will finally have passed."

"But what can be done?" I asked, feeling uncomfortably adrift in a vast sea of IQ.

"A plan has already been devised," said Rufus. "It is to construct in space a very massive chunk of matter in the shape of a cube with provisions so that the cube's center of gravity and attitude in space can readily be altered, as desired, by the redirection of large quantities of water amongst various of the cube's six faces. In this way, we can compensate for the gravitational effects of the Salton Mass, in effect countering one imbalance with another. Now, why a cube, you ask?"

"All right. Why a cube?"

"Because it has corners. Ears, if you will. If we used a sphere, of which shape there is no shortage in the heavens, it couldn't get a gravitational 'purchase' on the rest of the solar system. It would 'spin its wheels' like a car stuck in mud but achieve no result. At the other extreme, a long, massive cylinder, for example, or a slab, would be *too* asymmetrical—too difficult, too slow, and requiring too much energy to maneuver quickly." Rufus smiled in that charismatic way of his that had melted the hearts of millions. "A cube, therefore, turns out to be the ideal compromise."

I felt as awed as a two-year-old. "A square planet?" I managed to say.

"Cubic," said Rufus.

"What are you going to call it?"

"Cubeworld."

"Makes sense."

"Si, amigo."

"But isn't something like that going to take a heck of a lot of material? What are you going to make it out of?"

"Earth," he said.

"You mean dirt? Mud?"

He shook his head, while the rest of his elite crew stared at me intently. "Earth," he repeated. "The."

II · TRANSFORMATION

The contemplated feat of engineering was, of course, colossal. In theory, we had to lop sections off some parts of the Earth (sorry 'bout that, Europe!) and redistribute the material elsewhere, specifically into eight three-sided corners each equidistant from its neighboring corners (see Figure 2), as if cubing a grapefruit by slicing six domes off its surface and building up "ears" out of the excavated material.

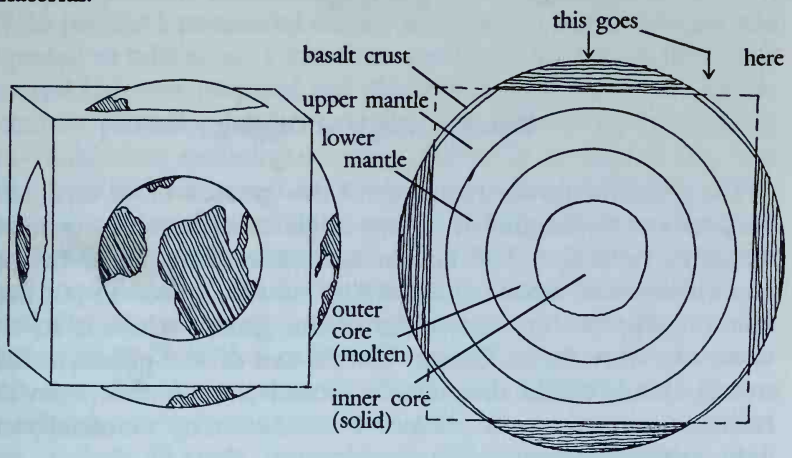

Figure 2 The Challenge

To our perception (our Sphereworld perception, that is, since Cubeworld perception, as you know, turned out to be markedly different) we would be digging "down" to begin with at an angle of fifty-three degrees, an angle which, in bizarre disregard of the fact that we'd be proceeding unvaryingly along an absolutely straight line, would nonetheless gradually change until it became

ninety degrees and we were digging "straight ahead" instead of "down" (see Figure 3). The material thus chiseled away would simultaneously be piled up behind us at the same angle as our digging, resulting in a geometrically flat plane extending in all directions until intersection with neighboring planes.

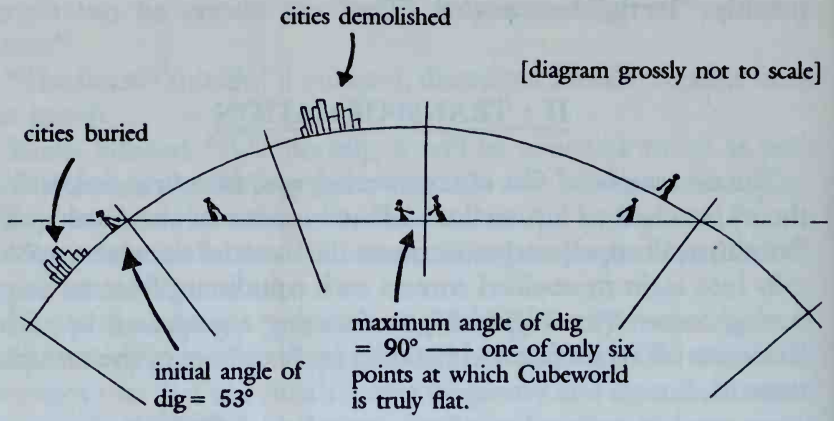

Figure 3 Angle of Digging

The awesome power required for this greatest of all earthwork projects was to be nuclear. Every single atom bomb in existence would be needed, and all nuclear nations, realizing that refusal to cooperate would amount to planetary suicide, agreed to put their munitions under the jurisdiction of our group, which is to say, under one man: Rufus Cortez. Untold tons of lead pellets, artfully strewn about, would theoretically protect the populace from the radiation expected to be released from these sixty thousand carefully coordinated underground explosions.

Although the total renovation of the entire globe promised to be no mean task, on the other hand humanity was not without resources. Our tabulations revealed the existence of some 200,000 airplanes, twenty million dump trucks, 6 million bulldozers and comparable numbers of like machinery. China alone was slated to contribute almost a billion wheelbarrows, not to mention much of the muscle power to wield them.

My job, of course, was to smooth the way, peoplewise, for all the

high-tech engineering to come. When, as many of you will recall, I finally broke the news to the world, my voiceprint oozed pure optimism. In addition to setting forth the facts, laced with reassurances that our unprecedented construction scheme would be radioactively safe, I conveyed Rufus Cortez's personal promise that not one person would be left behind when the great demolition derby began. (In fact, over fifty thousand *chose* to remain behind and died.)

Preparations for the day on which the actual transformation would begin, designated Cube Day, covered a period of several months. The Earth was surveyed. Equipment was positioned. Armies were placed on alert. Workers with jackhammers scored the planet like glass in six great circles so that it would break off cleanly when tapped by our nuclear warheads. Although the logistics of all this were as massive as the mass itself, happily a sense of global comradeship took hold, as peoples of all nations put aside their differences and began exhibiting a degree of cooperation measured at 72.44 percent, commendably close to the theoretical limit of 79.36 percent I mentioned earlier. Because the transformation was expected to take about a month to complete, 5.1 billion thirty-day survival kits were prepared and distributed, and plans were coordinated for providing food, water, clothing, shelter, sewage disposal, and health care, including new baby deliveries, as needed. My own efforts during this period were directed toward helping people adjust to the great dislocations to come, preparing them to relinquish psychologically things they might hold dear: for example, the Empire State Building, the Mississippi River, Italy. Because there existed the great unknown of whether humanity could adapt to life on a cube or, indeed, a cube itself to partnership in the solar system, a worldwide campaign was conducted, under my supervision, to select humanity's most treasured artifacts—books, films, machinery, seeds of all kinds, frozen sperm and eggs, and so forth—and send as much of this material as our rocket capacity would allow out of the solar system altogether, so that if humanity did perish in its bold effort to save its world, someday our "bottles" on the ocean of space might be found and our civilization remembered, or possibly even revived.

A week before Cube Day people relocation began. My wife (a homebody), my daughter (a born explorer), and I were housed at Planned Planethood headquarters. There was a savory sense of ten-

sion amongst the populace, not unlike that before an important football game.

Finally, just hours before the beginning of the transformation, the globally televised firing of humanity's legacy into space took place from Cape Canaveral and other launching sites. A hundred rockets, with a combined payload of over half a million tons, blazed into the sky. Our ark was launched—or so we had been craftily led to believe. Unsuspecting, we breathed a collective sigh of relief; we might die now, but our important papers, as it were, were safe.

That afternoon, however, as I made a final tour with Rufus Cortez and our Russian Chief of Demolitions, Vladimir Dubrov, I noticed, with anxiety, that the vast apparatus for rapidly covering the earth with a carpet of lead pellets didn't seem to be operational; no one was at his or her designated post, as planned.

"You observe correctly, Mr. Lindsay," said the Chief. "We're not going to use nuclear explosives at all. Never were, in fact, although I deliberately didn't let this be known to anyone, including you. *Especially* you."

I stared at him in bewilderment.

"Instead," he went on, "we're going to slice our domed sections off the earth with an oil exploration technique called 'geothermal fracturing'—pumping water into hot rock to crack it. As the rock crumbles, we'll cart it away and fracture the next layer, continuing until we have achieved the shape we want. We figure the planet's going to be one big humid steambath for three to four weeks. That's why we provided everyone with rain slickers."

"Then why did you have me tell everyone we were going nuclear?" I asked, mildly annoyed at my wasted efforts and possibly sullied reputation, yet somehow fundamentally relieved.

"I had to say that to get the countries that had nuclear weapons to turn them over. Otherwise, they never would have." Rufus' cheeks bulged with a smile. "You saw that king-sized space launch this morning, didn't you? The one that supposedly shot our 'time capsules' into outer space?"

"I covered it, as you well know."

His black eyes twinkled. "Like a cub reporter, *amigo*—never double-checking the payloads to see if maybe the cargos had been switched. Some Chief of Communications!"

"You mean—?"

His grin widened. "Gone forever," he said to the sky. "All thirty thousand warheads, defused and heading harmlessly out to interstellar space. The Sword of Damocles lifted at last!"

I smiled too. "Why, you crafty old wizard. I thought you were given this job because you could be trusted!"

"*Si, si.* And, as you can see, I can be." He gave his aide a signal. "Here we go, *amigo.* Hang on to your seat belt!"

With that, the transformation began. Forget continental drift; this was the continental runs. With steam restricting vision to a few feet, much of the work was done by feel and straightedge. Bulldozers roared and swarmed. Landmarks disappeared forever as earth was piled upon them, cooled, and then used as foundation for further extension. Geography as we knew it ceased to exist. Billions slept on cots, perspiring in the humidity. Thunderstorms reigned. Oceans relocated violently, producing phenomena for whose underwater details we must await future dolphinic exposition. Computers tirelessly updated our logistics. Populations were uprooted on an hour's notice. The ground trembled, volcanos blasted out angrily, edges crawled toward apexes.

And thirty days later, in the late spring of 1987, the task was done, and humanity was left with nothing but a square, bare polyhedron and a smattering of food, water, supplies, and equipment. Gradually, the steam disappeared, the clouds wept their last, and we saw our first sunshine in a month. From Planned Planethood headquarters, Sarah, Rebecca, and myself gazed for the first time upon our new world. And as we did, we experienced in full measure a feeling that had been growing every day during the transformation: that we were somehow off balance, tilted, as if we were standing on a ramp. Oddly enough, when the world had *been* round, it had *felt* flat. Now that it truly *was* flat, it felt as if we were living in a concavity whose apparent grade ranged from flat to a forty-five-degree incline depending on where between the center and the corners you were standing at the moment of plumb-bob measurement. The four apexes visible from our side were like mountains looming thousands of miles high, poking, indeed, right out of the atmosphere altogether, which had remained essentially spherical, though not quite to the extent it had been before.

So, while our surveyors jubilantly certified our world euclideanly planer, it *felt* as though we were about to slide along the inside of a

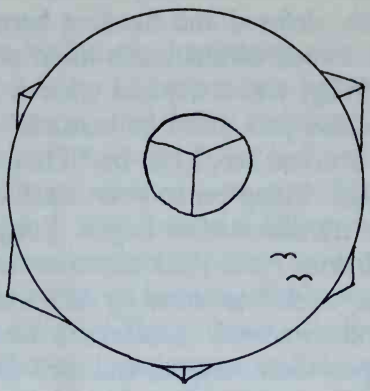

Figure 4 The Atmosphere

bowl toward its center, where, needless to say, the ocean had long since flowed and settled, and above which it now hovered, a jiggling bubble several miles high and 3,500 miles in diameter, one of six such bodies of water. Because Cubeworld *felt* steep, within minutes our planet *looked* steep as well. Though our horizon *was* straight, we *felt* it as bowed, and soon we began to "see" it that way, too (see Figure 5), in the same way as psychology test subjects who wear special inverting lenses readjust mentally and "see" the image right side up.

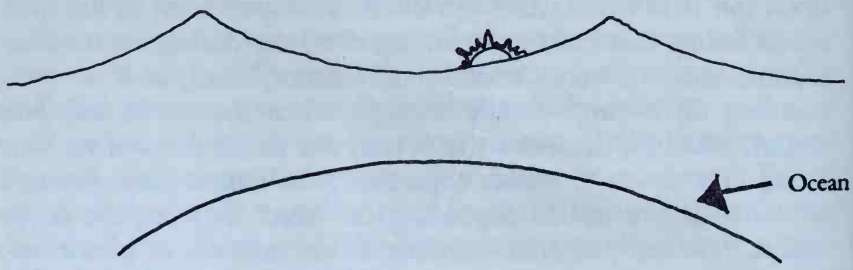

Figure 5 Inhabitants' Eye View of Cubeworld

So, what was Cubeworld *really,* I remember reflecting, as the sun slipped oddly over the crescent horizon of our recast planet, shrouding our "valley" in a lovely violet twilight? Flat or curved? Was "is-ness" what you felt, what you saw, or what you thought?

When senses tug in contradictory directions, which is to be believed? Or was instead the lesson Cubeworld taught us that truth is not to be found in *any* of the senses, and that perhaps, in the end, the only truth is shape? As Planned Planethood's slogan suggested: Geometry Rules. Is-ness is Angle.

I looked at Sarah, holding Rebecca close to her and looking out, or rather "up," across the vastness of our new land. She was crying.

III · CUBEWORLD

That first year was Cubeworld's honeymoon. After an initial period of inconvenience, for which I had psychologically readied everyone, resettlement grew geometrically more routine; and while some of the properties of Cubeworld took some getting used to, by and large most people found our revised planet a distinct improvement over the old one.

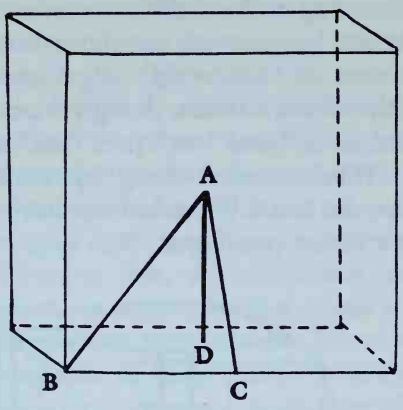

Figure 6 Cubeworld's Gravity

The new shape of gravity was, of course, the fundamental difference (see Figure 6). On a perfect sphere, all points on the surface are equidistant from its center; indeed, this is what defines the object *as* a sphere. On a cube, however, there is no single equidistant radius from center to surface but an infinite number of lengths bounded by three unique extremities: the *shortest distance (AD),* between the cube's center and one of the six centers of the six sides; the *longest distance (AB),* between the center and one of the eight

corners; and an *intermediate distance (AC),* between the cube's center and the center of one of its twelve edges. All other distances fit somewhere within these three.

As a result, the uniform pull of gravity toward the center of our new world was intercepted by flat planes at different angles, depending on where on the plane you were standing. Let me put it to you straight (a word itself of increasingly ambiguous meaning): Cubeworld was one relentless incline. From apex *B* you'd roll to *C* or *D;* from *C* you'd roll to *D;* and at *D* you'd be six to ten miles underwater owing to the fact that an ocean had rolled there long before you did.

In its capacity as emergency gyroscope to the solar system, Cubeworld had been designed to finesse these immense blobs of water from one side to another at will, thereby continuously countering the effects of the Salton Cycle when that insidious cloud of inertia finally made the first of its two scheduled passes near our solar merry-go-round. This capability was realized within three months by connecting each of the six oceans to its four nearest neighboring oceans by pairs of enormous buried pipes that ran "up" to the centers of Cubeworld's edges and then "down" the other side into the adjacent ocean, though these conduits were generally thought of as "in" and "out" (not "hot" and "cold"; let's be serious here!). Thusly herded along by hundreds of powerful pumps, an entire sea could be sucked up and redistributed in less than twenty-four hours (see Figure 7).

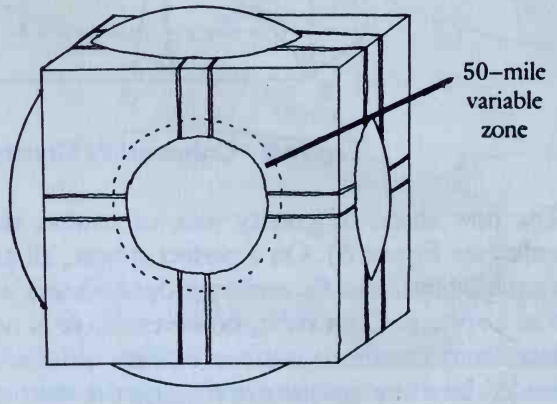

Figure 7 Ocean Relocation System

The awesome power required to pump all this liquid about so quickly derived from the seas themselves. Because all six oceans were perfectly circular, they were subject for the first time to the Coriolis effect—the rotation of bodies of liquid in response to the Earth's rotation, an effect most commonly observed in toilets, which flush in whirlpools, clockwise or counterclockwise, depending upon where on either Earth or Cubeworld they are located. So it now was with the seas. Surf swept shores angularly, as if the oceans were being churned by giant blades at the center. Handily, by intercepting these circular currents at the shore with anything from homemade water wheels to sophisticated turbines, made mobile to adjust to an ocean's changing diameter, we were able to tap all the free, absolutely pollutionless power we needed. In addition, clean, free power could also be teased from the wind, which was constantly sweeping radially from edge toward center, whooshing across the oceans and converging turbulently at their middles.

Getting about on Cubeworld proved to be another pleasant surprise. Initially, as we spread out to reconquer our planet, almost all travel was by vessel. Happily, getting across an ocean required no power whatsoever; you simply drifted around with the Coriolis current until you arrived where you wanted to be and then stepped off as if from a carousel. (One had to avoid the center, of course, which resembled the inside of a Cuisinart!) As airports were rebuilt, air transport again came into its own, thereby facilitating interfacial travel. Following this, we rebuilt our road and railway systems, arranging them in smartly banked spirals to take advantage of Cubeworld's ubiquitous steepness. A bicyclist, for example, could coast for thousands of miles along the Coriolis Cruiseway, our largest vehicular artery, without a single turn of the pedals, as if negotiating the inside of a shallow bowl from rim to bottom. Those hardier souls wishing to make their way from one side to another as pedestrians could do so by following the route of the buried water pipes—climbing up to the edge of the world and savoring the magnificent vista that greeted one upon looking over or, to the same extent, by looking behind oneself. Although the air was thinner in these areas, congenially, it was impossible to fall completely "off" the edge of this world, although you could certainly roll down a fairly steep pitch (forty-five degrees at the outset and

gradually diminishing), an opportunity soon seized upon by skateboarders and other daredevils. Most innovative of all, however, was the intercubal express transit network which made dual use of the giant underground water pipes primarily intended to transfer ocean water from one face of Cubeworld to another to counter the Salton Cycle. Passengers could ride in comfortable, pressurized capsules through these aqueducts, powered without cost by the natural ocean currents. Mail, produce, and merchandise were all eventually floated through this network, as well.

These same great pipes, in conjunction with enormous desalinization apparatus, also served to distribute water about the planet for drinking and irrigation purposes. This was necessary because Cubeworld's centrally pulling gravity caused any water that evaporated naturally from the seas' surfaces to concentrate at the centers rather than disperse homogeneously throughout the world. Of course, the plus side of our oceans' miserliness with their H_2O was that the weather on Cubeworld was a picnicker's dream. It was almost always sunny and pleasant, if somewhat windy, which resulted over time in an architectural style emphasizing vertical windbreaks. As rare as natural rain in summer was natural snow in winter, although artificial snow was frequently generated for recreational purposes. When it fell, it did so at an angle to the ground; except when there was a stiff wind, and then it fell "straight down." It wasn't long before some clever Cubeworldian solved the problem of multiangular precipitation by inventing the "All-Latitude Adjustable Umbrella."

Communication—my department—proved to be a cinch, in spite of the fact that almost all ground-wired communication links had been destroyed during transformation and all communications satellites, their orbits outraged by our spiffy new shape, were out of whack and on their way to fiery re-entry. The reason was that we no longer had a big planetary paunch—our old horizon—getting in the way of straight-line communications. As a consequence, we were able to interconnect the entire planet by building reception-transmission towers atop just three of Cubeworld's eight apexes. Because these apexes extended well beyond our atmosphere, the towers built upon them were completely free from meteorological buffeting and hence no longer required massive supports, while a further advantage of being above the atmosphere was that the tow-

ers could exchange data at optical wavelengths directly through "outer space" without the need for long glass fibers, thus boosting our information-processing capacity far beyond even the human race's hunger for chatter (see Figure 8).

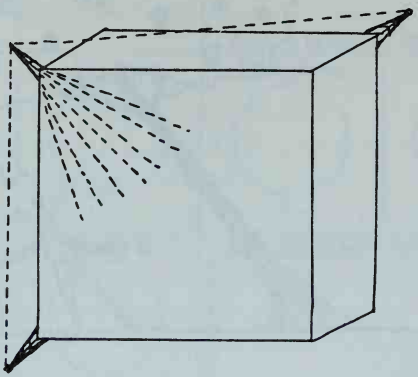

Figure 8 Communications

Of Cubeworld's six available sides, one, called Agriland, was set aside in its entirety as the planet's breadbasket. Thanks to our new capability, it was aimed toward the sun so as to receive twenty hours of light a day without seriously shortchanging the other sides. Soon endless fields of wheat and corn reached, at an angle, to the sky. Rice paddies flourished. Erosion, while ubiquitous in our inclined environment, was turned to advantage, as fresh soil was constantly hauled to the outlying districts and allowed to migrate back to the sea, sharing its nutrients with crops along the way—the old farming technique of crop rotation having given way to the new one of soil rotation. There were thousands of square miles of grazing land, livestock galore, chicken farms, eggeries, and orange groves—whose trees all slanted, as if cringing, and whose fruit, were it to have fallen on some modern Newton's head, would have done so at an angle as well (see Figure 9). It was all almost too good to be believed. Agriland was blessed with unlimited energy, water, and sunlight. As a result of this easy abundance, Rufus Cortez proclaimed food on Cubeworld free to all.

Governmentally, Cubeworld was organized as a pentocracy, with each of the five sides (not counting Agriland) having one vote re-

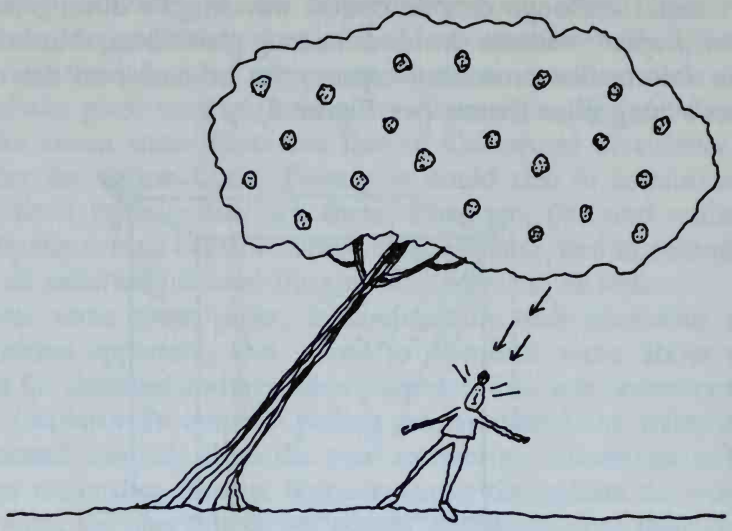

Figure 9 Sir Murray Newton's Orange

garding cubal policy, three votes constituting a working majority. Should one side abstain and the others split two-two, Rufus Cortez could cast the deciding ballot; in regard to any astronomical emergency, however, he remained our autocratic Chief of Operations. The basic unit of monetary exchange was the cubit, naturally, and a universal flat sales tax provided sufficient funds to meet the common need. The major outlay was for machinery and infrastructure, since power and food were cheap and abundant.

Though we were Pentocrats all, in recognition that it took all kinds to make a world, whatever its shape, Cubeworld's five "residential" sides were further divided according to three levels of freedom: lots of it, almost none of it, and somewhere in between (see Figure 10). The side called Freeland was, by design, the most uninhibited and was settled by those of us to whom a healthy dose of chaos is like a breath of air. It hosted a disproportionate number of artists, musicians, inventors, and all-night dance palaces, as well as a spectacular resort called Artificial Hawaii; some claimed that even the angled trees seemed more laid back here than on the other sides. Here creativity abounded, highways looped and curved gaily, if not illogically, schools gave the least homework of any square on

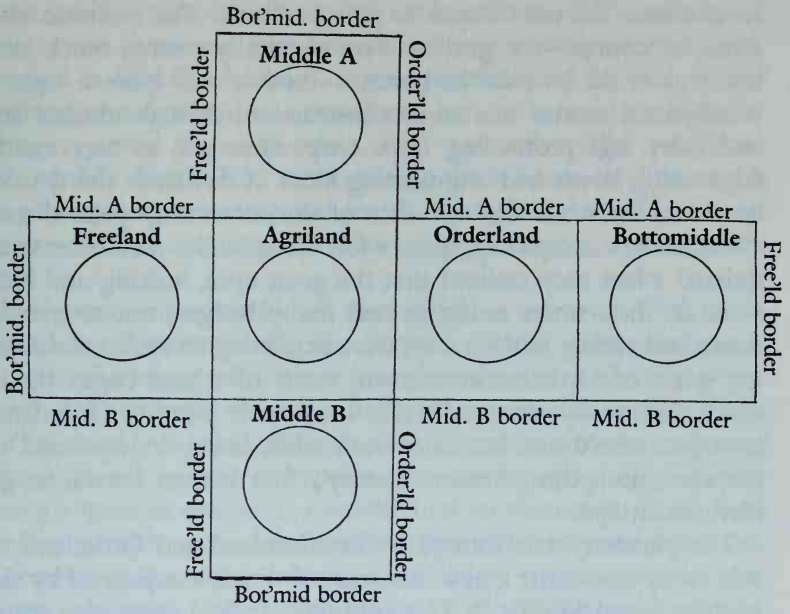

Figure 10 Social Structure

the planet, and gray matter and the eccentric touch were cherished and applauded. Indeed, it was on Freeland that one freewheeling scientist developed a process to make gray matter itself brightly colored, while another researcher discovered a wholly new basic taste, so that the human race, long limited to four, now had five: sweet, sour, salt, bitter, and Walter, which was especially good sprinkled on eggs.

On the opposite side of the planet was Orderland, to whose gridlike burgs gravitated those folks preferring a higher degree of security and predictability in their lives, and where one had to be fingerprinted to buy a slice of pizza, get a haircut, cross a toll bridge, or go to a (censored, of course) movie. The entire side was planned and modular, a facewide grid of greater and lesser squares, right down to the shape of the buildings. So enamored of authority were the repressed people who chose to live on this sixth of our world that their society gave rise to one of mankind's oddest social

revolutions: the use of apes as police officers. The rationale made sense, of course—the gorillas were physically strong, quick learners, and could be paid in bananas—and it was quite a sight to watch them receive martial arts instruction, their pendulous arms and hairy legs protruding from crisp white *gi*s, as they emitted frightening howls and intimidating kicks. A downside did develop, however, for while the new face of simian security pleased many Orderlanders completely, quite a few Orderlander men became disquieted when they realized that the great apes, hulking and handsome in their smart uniforms and flashy badges, not to mention warm and cuddly in their way, were beginning to attract the admiring gazes of Orderlander women, many of whom began to date them. Eventually the predictable happened: a pretty Orderlander teenager, who'd met her hairy beau while being fingerprinted at a surprise checkpoint, became history's first human female to give birth to an ape.

The planetary axis formed by Freedomland and Orderland was echoed by two other major axes, one of which was formed by sides Middle A and Middle B. Though both of these sides were equally moderate-minded in terms of personal liberties, they nevertheless soon became polarized in that Middle A grew increasingly analog while its opposite side waxed enthusiastically digital. That is to say, those who, for example, liked the hands-on feel of slide rules rather than pocket calculators made their homes and friends mainly on Middle A, while on Middle B, generally speaking, you'd find people whose taste ran to, say, clocks with LED readouts in place of the traditional little hands and big hands ubiquitous on Middle A. This dichotomy extended to hundreds of consumer items, from cameras to bathroom scales, as well as to interpersonal relationships. For example, Middle B men would be apt to measure a woman's beauty digitally, say on a scale of one to ten, while Middle A-ers would instead describe hourglass figures with their hands, waggle their eyebrows, and make appreciative vocal sounds. For this reason, Middle A soon acquired a nickname among some: France.

The planet's third axis was formed by the opposing sides of Agriland and Bottomiddle. That is, in contrast to the rural lushness of Agriland, Bottomiddle grew densely urban, finally knitting into a vast planetary city and thus providing both city lovers and country

lovers with a clear-cut choice of environments. Bottomiddle, of course, was so named because, while it was socially as middle-of-the-road as Middles A and B, it was geometrically the rear end of Agriland, and Agriland was the side which—as it faced the light for a longer period than any other side—was universally considered Cubeworld's "top." That is to say, if a giant being striding across the solar system were to pause for a rest, Agriland was the side on which we all instinctively felt it would sit. Certainly not on a corner!

In short, our new world had something for everyone. With unrestricted travel amongst the five "states" cubally guaranteed; with the risk of nuclear self-destruction gone forever; and with everybody's belly full and optimism high, there was no question about it: Cubeworld was full and rich and pleasantly bizarre; six happy valleys (so far as our perception was concerned) sailing cockily through space as our poets romanticized its virtues: its funky new gravity, exemplary weather, bobsled superhighways, and free food. A popular song, which became a hit on all six sides of the new planet, celebrated Cubeworld's ability to tilt: "I like your attitude, I'm on your latitude, you have my gratitude, Cubeworld.'" And that first year, in February, Sarah gave birth to Michael, a lovely boy child who had never known gravity as we had, and now we were four—just like the equilateral horizons of Bottomiddle where we lived.

At last, as predicted, the Salton Mass approached, and we were ready for it. We shunted oceans extravagantly, our planet "passing water," as some jokesters said; and, as all of us know, it worked—though not without some discomfiture, for as Cubeworld's posture in the sky became altered, so did the equilibrium of the entire solar system. It was as if we were inside a planetarium whose projector had gone out of control. Even distant Pluto moved perceptibly into a new orbit, while here at home the lengths of our days stretched and shrank daily, causing chronic jet lag for billions of us. Because the sun no longer rose or set over our curved horizon but rather slid along them as if being sheared by giant scissors, many people became nauseated and had to stay indoors, although some did find the bizarre display entertaining and got high on it. Despite the many virtues of a cubic world, a "Round Is Sound" movement developed whose adherents wanted to restore the planet to a spher-

ical shape now that the danger from the Salton Mass had passed.

As things turned out, we were forced by the power of geometry itself to do just that.

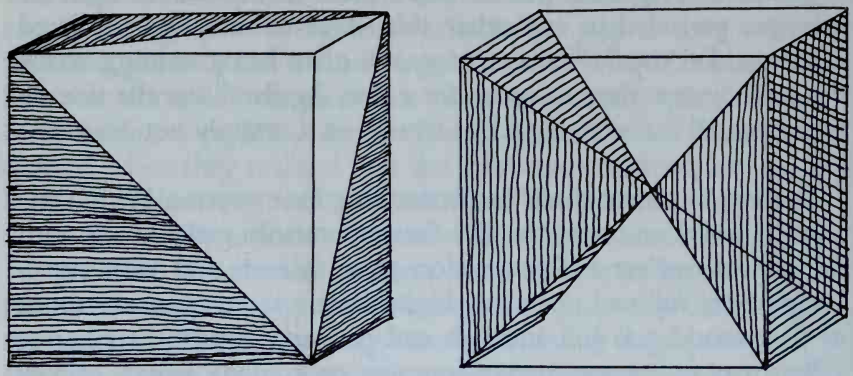

Figure 11 Three-sided Major Pyramids and Four-sided Minor Pyramids

The problem was that a cube, as can be seen in Figure 11, is composed, implicitly, of eight major three-sided pyramids, each with an apex at a corner of the cube and a triangular base inside the cube, plus six minor four-sided pyramids with bases formed by the cube's six sides and apexes converging at the center. And when our scientists first detected seismological stresses in Cubeworld's interior which threatened to blow the entire planet to smithereens, they speculated—once all known physical phenomena had been eliminated as possible causes—that the stresses were caused by these massive inherent pyramids generating and "focusing" at our planet's center enormous amounts of "pyramid power"—the hypothetical energy that supposedly keeps mummies fresh for millennia, improves general health, makes seeds sprout faster, and sharpens razor blades. Unorthodox as this notion was, it was lent credence by the fact that our population was indeed healthier, seeds were indeed bursting forth more vigorously, and yes, the razor industry was in trouble because men inexplicably just weren't buying new blades anymore. Indeed, as Chou Mao Li, our gentlemanly Chief of Security suggested, cubic planets, perhaps many times the size of our own with correspondingly larger ingrown pyramids, might

at some time have been used as giant interstellar space mines in some awesome galactic conflict—or might yet be the ultimate weapons of the future.

Whatever the merits of these theories, the test results were beyond question: Cubeworld had a tiger in its tank, and unless we turned it back into a sphere in a hurry, our cheery little polyhedron would soon be vying with the asteroid belt for most interesting collection of rocks in the solar system. We were truly at the mercy of geometry. Cubeworld was not, after all, the shape of things to come. The postulates of Euclid ruled our universe indeed.

And so, for the second time, we gathered our will and resources and set about to accomplish an epic task of earthmoving. Once again we prepared a month of survival supplies for the world's population. Once again we assigned everyone a task, a position, and a destination. Finally, all was ready; and as our beloved cube gurgled inside with the pyramidal heartburn that threatened to destroy it, we said a collective, televised good-bye to our comfy little planet and began the transformation.

It was as before, only in reverse. Machinery moved into action. Calculated explosions rent the air. Wheelbarrows rolled and supervisors barked. Apexes became domes became hills became gently arcing plains. The great globules of oceans were transformed back into rivers, lakes, and irregularly shaped seas. Bottomiddle was sculpted into Australia, Agriland into Europe, and Freeland into North America, while Middles A and B and Orderland were distributed as needed. The Grand Canyon was re-excavated and Mount Everest re-created and recrowned. Once again our now five point five billion inhabitants spent a month in a global steambath.

At last, as before, the job was done. Gradually the steam dissipated. Sarah, myself, and the kids, perched on a knoll beside the soon to be obsolete Planned Planethood headquarters, looked around us gratefully. Everything was back in place. Indeed, and incredibly, *exactly* back in place. The sun was just beginning to appear over the nearly straightedge (or so it now appeared) horizon to the east; indeed, its appearance is what *made* it east. The temperature was exactly sixty-eight degrees Fahrenheit with low humidity—an absolutely gorgeous morning. And, as I looked off to one side, by golly if that interface between sculpted land and sparkling sea wasn't a dead ringer for the coastline of New Jersey!

Soon we would begin refurbishing our lives to readapt to an environment many of us had quite forgotten during the short time we were cubical. Maybe, indeed, we'd learned something from the experience. The Earth was again spherical, and perhaps that was the way things were supposed to be. Who were we mere humans to argue with the majesty of angle and shape? Geometry was the grand master of the universe after all.

I looked around to see our youngest child, who'd been born on Cubeworld and who'd never experienced existence on a round planet before, running in excitement to Sarah. "Mommy, Mommy!" he called in wonder. "This is weird!"

"What, honey?" she asked, with a happy look toward me.

"It's flat, Mommy! The whole world is flat!"