

THE HUNT FOR ZERO POINT

*Inside the Classified World of
Antigravity Technology*

NICK COOK

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In memory of Julian Cook, inventor, and Harry Hawker, fighter pilot

Per ardua ad astra

And for my children, Lucy and William, that one day they or their
children may see the stars more closely

Author's Note and Acknowledgments

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Prologue

The dust devils swirled around my Chevrolet Blazer, catching the early evening light. I watched Sheriff's Deputy Amelia Lopez clamber out of her Chrysler Le Baron and stare for a moment in the direction the plane had gone down ten years ago.

I grabbed my rucksack. By the time I looked up again she was already striding toward the peak.

Over a rusted barbed-wire fence and we were into the scrub—with new traces of green at its tip from the spring rains. Beyond lay the edge of the Sequoia National Forest, a huge expanse of protected park and woodland.

We left the broken fence posts behind and our cars were lost against the sunset. I looked for other traces of a human presence, but found none, even though we were only twelve miles from Bakersfield, California, a city of four hundred thousand people on the edge of the Sierra Nevadas.

Amelia Lopez' peaked cap and the firearm on her gunbelt were clearly silhouetted as she moved along the jagged edge of the ridgeline.

As I sucked down the warm thin air and wiped the sweat out of my eyes, I tried to picture her as she must have been on that sweltering July night ten years earlier; the night she'd been out partying with her college friends at a campsite near the Kern River.

It was in the breaking hours of July 11, 1986. Just as she was settling into her sleeping bag the jet went supersonic somewhere in the black sky overhead.

The pressure wave of the sonic boom hit the campsite like a clap of thunder, sending a shower of embers from the campfire into the night sky.

Amelia was too startled to say a thing; then, the entire horizon was flash-lit by an enormous explosion, the flames shooting skyward as the plane plowed into Saturday Peak ten miles away.

She told me it had sparked a dozen brushfires on the edge of the forest; that it took more than a hundred Forest Service and local firefighters to put it out. Her only thought was that this wasn't an aircraft at all, but a hydrogen bomb.

Within hours, every newspaper in the state, and a whole lot more besides, had a reporter heading for these foothills with a brief to find out what had hit the ground. Amelia Lopez, a law student at the state university in Sacramento, had been one of several witnesses quoted in the papers that had covered the story, which was how I'd traced her.

She and her friends hadn't gone more than five miles toward the impact point when one of them noticed a figure on the trail up ahead. The scrub either side of her erupted with movement and the ne

thing she knew her face was in the dirt and she had a boot in her back and a gun at her head.

Out of the corner of her eye she saw that they were soldiers—not California National Guard, might have been expected in an environmental emergency, but SWAT-types brandishing assault rifles, night-vision systems and a shit-load of threats about government property and national security.

Two of her friends started on about their rights under the Constitution, that this was public land and there wasn't a person on earth who could tell them to get off it. But to Lopez their protests registered as white noise on the edge of a persistent and piercing alarm. These soldiers were unlike any she'd ever seen.

She screamed for her friends to shut up, but once the screaming began, she couldn't stop it. She screamed and she yelled and she flailed against the pressure in her back, until the next thing she felt was the slap from her roommate that brought her around. When she finally understood what she was being told, it was that the soldiers were gone.

None of them said a word as they doubled back to the campsite. When they reached it, still numbingly with shock, they found a bunch of reporters onsite getting statements from other witnesses. Somebody shoved a tape recorder in her face and started asking questions and before she knew it she'd given her name and stammered something about an atomic blast.

As for the rest, she and her friends said nothing.

Amelia Lopez kept a lid on her feelings for the next two and half years, until November 1988, in fact, when the outgoing Reagan administration revealed the existence of the F-117A Stealth Fighter, an aircraft that had been flying in secret squadron service out of a classified air base in Nevada for over five years. In that time, she learned, it had crashed twice: and on one of those occasions—on the night of July 10–11, 1986, to be precise—she'd had the grave misfortune to be there.

The troops had been part of a Pentagon “red team” flown in by helicopter to secure the crash site at all costs.

When she got my message, she'd been reluctant to meet up at first, but when I finally persuaded her to talk, she found it difficult to stop.

We reached the crash site soon after the sun dipped below the edge of the mountain. The summit was only 2,000 feet above us, but here the ground was even and covered in a crusty layer of dirt. The plants and trees were younger than the vegetation we'd passed on the way up. But that was the only real clue something had happened here.

Amelia Lopez sat on a rock and slowly removed her mirror shades before pouring bottled springwater over her face. I felt her eyes follow me as I moved between clumps of vegetation, kicking over rocks and sifting the sand, even though there was nothing to see.

Lopez bent down and ran her fingers through the soil. “I read they sieved the dirt for a thousand yards out from the impact point,” she said. “Those guys were damned thorough. A few weeks after they left it was like *nothing* ever happened here.” She paused a moment before adding: “You being a

expert, I imagine you knew that.”

It was framed as a question and I grappled for something to say, conscious that she'd brought me here for any insight I could provide into the events of that night.

I said nothing, so she turned to me and said: “Are you gonna tell me what is really going on here?”

Overhead, an eagle cried. As I watched it wheel on the updrafts I hoped that she wouldn't press me for an answer, because I didn't know what to tell her.

Standing here in this place, I was filled with the old feeling. It was almost impossible to articulate but it left you with a taste in the mouth, some innate sense, that however far you dug, however many people you interviewed or questioned, you were simply scratching the surface of the sprawling U.S. defense-industrial base. What had happened here, the events that had imprinted themselves onto the landscape in a moment or two of madness a decade or so earlier, were almost tangible, even though there was no physical evidence—no fragments amidst the thin soil and the rocks—to suggest anything out of the ordinary had occurred.

These people were thorough; Lopez herself had said it. But they left something behind, something you couldn't see or touch—and it was that trace, that echo of past deeds, that had brought me here.

The Stealth Fighter was real enough. As a reporter, I'd covered it from the inside out. Yet as a piece of technology it was more than two decades old, almost every detail of it in the open now. But strip away the facts and the feeling persisted.

I got it when I went to U.S. government defense laboratories and on empty windblown hangar floors in parched, little-known corners of the country. I got it at press conferences in power-soaked corridors of the Pentagon. But most of all I got it when I stared into the eyes of the people who worked on those programs.

What I got back was a look. Individually, it said nothing, but collectively it told me there was a secret out there and that it was so big no one person held all the pieces. I knew, too, that whatever it was, the secret had a dark heart, because I could sense the fear that held it in place.

It was impossible to tell Lopez any of this, of course, because it was simply a feeling. But as I headed back for the car, I knew the trip hadn't been a waste.

At long last, the secret had an outline.

Through half-closed eyes, I could almost reach out and touch it.

Chapter 1

From the heavy-handed style of the prose and the faint handwritten “1956” scrawled in pencil along the top of the first page, the photocopied pages had obviously come from some long-forgotten scholarly or popular science journal.

I had stepped away from my desk only for a few moments and somehow in the interim the article had appeared. The headline ran: “The G-Engines Are Coming!”

I glanced around the office, wondering who had put it there and if this was someone’s idea of a joke. The copier had cut off the top of the first page and the title of the publication with it, but it was the drawing above the headline that was the giveaway. It depicted an aircraft, if you could call it that, hovering a few feet above a dry lakebed, a ladder extending from the fuselage and a crewmember making his way down the steps dressed in a U.S.-style flight suit and flying helmet—standard garb for that era. The aircraft had no wings and no visible means of propulsion.

I gave the office another quick scan. The magazine’s operations were set on the first floor. The whole building was open-plan. To my left, the business editor was head-down over a proof-page checking copy. To her right was the naval editor, a guy who was good for a windup, but who was currently deep into a phone conversation and looked like he had been for hours.

I was reminded of a technology piece I’d penned a couple of years earlier about the search for scientific breakthroughs in U.S. aerospace and defense research. In a journal not noted for its exploration of the fringes of paranormality, nor for its humor, I’d inserted a tongue-in-cheek reference to gravity—or rather to antigravity, a subject beloved of science-fiction writers.

“For some U.S. aerospace engineers,” I’d said, “an antigravity propulsion system remains the ultimate quantum leap in aircraft design.” The implication was that antigravity was the aerospace equivalent of the holy grail: something longed for, dreamed about, but beyond reach—and like always to remain so.

Somehow the reference had escaped the sub-editors and, as a result, amongst my peers, other aerospace and defense writers on the circuit, I’d taken some flak for it. For Jane’s, the publishing empire founded on one man’s obsession with the detailed specifications of ships and aircraft almost a century earlier, technology wasn’t something you joked about.

The magazine I wrote—and still write—for, *Jane’s Defence Weekly*, documented the day-to-day dealings of the multibillion-dollar defense business. *JDW*, as we called it, is but one of a portfolio of products detailing the ins and outs of the global aerospace and defense industry. If you want to know about the thrust-to-weight ratio of a Chinese combat aircraft engine or the pulse repetition frequency of a particular radar system, somewhere in the Jane’s portfolio of products there is a publication that

has the answers. In short, Jane's was, and always has been, about facts. Its motto is: Authoritative, Accurate, Impartial.

It was a huge commercial intelligence-gathering operation; and provided they had the money, anyone could buy into its vast knowledge base.

I cast a glance at the bank of sub-editors' work-stations over in the far corner of the office, but nobody appeared remotely interested in what was happening at my desk. If the subs had nothing to do with it, and usually they were the first to know about a piece of piss-taking that was going down in the office, I figured whoever had put it there was from one of the dozens of other departments in the building and on a different floor. Perhaps my anonymous benefactor had felt embarrassed about passing it on to me?

I studied the piece again.

The strapline below the headline proclaimed: "By far the most potent source of energy is gravity. Using it as power, future aircraft will attain the speed of light." It was written by one Michael Gladys and began: "Nuclear-powered aircraft are yet to be built, but there are research projects already under way that will make the super-planes obsolete before they are test-flown. For in the United States and Canada, research centers, scientists, designers and engineers are perfecting a way to control gravity—a force infinitely more powerful than the mighty atom. The result of their labors will be antigravity engines working without fuel—weightless airliners and space ships able to travel at 170,000 miles per second."

On any other day, that would have been the moment I'd have consigned it for recycling. But something in the following paragraph caught my eye.

The gravity research, it said, had been supported by the Glenn L. Martin Aircraft Company, Boeing Aircraft, Lear "and several other American aircraft manufacturers who would not spend millions of dollars on science fiction." It quoted Lawrence D. Bell, the founder of the plane-maker that was first to beat the sound barrier. "We're already working on nuclear fuels and equipment to cancel out gravity." George S. Trimble, head of Advanced Programs and "Vice President in charge of the Gravity Project at Martin Aircraft," added that the conquest of gravity "could be done in about the time it took to build the first atom bomb."



The G-Engines Are Coming!

By far the most potent source of energy is gravity. Using it as power future aircraft will attain the speed of light.

By MICHAEL GLADYCH

■ Nuclear-powered aircraft are yet to be built, but there are research projects already under way that will make the super-planes obsolete before they are test-flown. For in the United States and Canada research centers, scientists, designers and engineers are perfecting a

which there has been no escape. "What goes up must come down," they said. The bigger the body the stronger the gravity-attraction it has for other objects . . . the larger the distance between the objects, the lesser the gravity pull. Defining those rigid rules was as

way to earth.

This discovery gave modern scientists a new hope. We already knew how to make magnets by coiling a wire around an iron core. Electric current running through the coiled wire created a magnetic field and it could be switched on

A little further on, it quoted "William P. Lear, the chairman of Lear Inc., makers of autopilots and other electronic controls." It would be another decade before Bill Lear went on to design and build the first of the sleek business jets that still carry his name. But in 1956, according to Gladych, Lear had his mind on other things.

"All matter within the ship would be influenced by the ship's gravitation only," Lear apparently said of the wondrous G-craft. "This way, no matter how fast you accelerated or changed course, your body would not feel it any more than it now feels the tremendous speed and acceleration of the earth." The G-ship, Gladych explained, could take off like a cannon shell, come to a stop with equal abruptness and the passengers wouldn't even need seat belts. This ability to accelerate rapidly, the author continued, would make it ideal as a space vehicle capable of acceleration to a speed approaching that of light.

There were some oblique references to Einstein, some highly dubious "facts" about the nature of subatomic physics and some speculation about how various kinds of "antigravity engines" might work.

But the one thing I kept returning to were those quotes. Had Gladych made them up or had Lawrence Bell, George S. Trimble and William "Bill" Lear really said what he had quoted them as saying?

Outside, the rain beat against the double-glazed windows, drowning the sound of the traffic that crawled along the London to Brighton road and the unrelenting hum of the air conditioning that regulated the temperature inside.

The office was located in the last suburb of the Greater London metropolis; next stop the congested joys of the M25 ring road and the M23 to Gatwick Airport. The building was a vast redbrick two-story bunker amid between-the-wars gray brickwork and pebbledash. The rain acted like a muslin filter washing out what little ambient color Coulsdon possessed. In the rain, it was easy to imagine that nothing much had changed here for decades.

As aviation editor of *JDW*, my beat was global and it was pretty much unstructured. If I needed to cover the latest air-to-surface weapons developments in the U.S.A., I could do it, with relatively few questions asked. My editor, an old pro, with a history as long as your arm in publishing, gave each of us, the so-called “specialists” (the aviation, naval and land systems editors), plenty of rope. His only proviso was that we filed our expenses within two of weeks of travel and that we gave him good exclusive stories. If I wanted to cover an aerospace and defense exhibition in Moscow, Singapore or Dubai, the funds to do so were almost always there.

As for the job itself, it was a mixture of hard-edged reporting and basic provision of information. We reported on the defense industry, but we were part of it, too—the vast majority of the company's revenue coming from the same people we wrote about. Kowtowing was a no-no, but so was kicking down doors. If you knew the rules and played by them you could access almost any part of the global defense-industrial complex. In the course of a decade, I'd visited secret Russian defense facilities and ultrasensitive U.S. government labs. If you liked technology, a bit of skulduggery and people, it was a career made in heaven. At least 60 percent of the time I was on the road. The bit I liked least was office downtime.

Again, I looked around for signs that I was being set up. Then, satisfied that I wasn't, but feeling self-conscious nonetheless, I tucked the Gladych article into a drawer and got on with the business of the day. Another aerospace and defense company had fallen prey to post-Cold War economics. It was 24 hours before the paper closed for press and the news editor was yelling for copy.

Two days later, in a much quieter moment, I visited the Jane's library. It was empty but for the librarian, a nice man way past retirement age who used to listen to the BBC's radio lunchtime news while gazing out over the building's bleak rear lot.

In the days before the Internet revolution, the library was an invaluable resource. Fred T. Jane published his first yearbook, *Jane's Fighting Ships*, in 1898; and in 1909 the second, *Jane's All The World's Aircraft*, quickly built on the reputation of the former as a reference work *par excellence* for anyone and all information on aeronautical developments. Nigh on a century later, the library held just about every book and magazine ever put out by the company and a pile of other reference works besides.

I scanned the shelves till I found what I was looking for.

The *Jane's All The World's Aircraft* yearbook for 1956 carried no mention of antigra-

experiments, nor did successive volumes, but that came as no great surprise. The yearbooks are the aerospace equivalent of *Burke's Peerage* or the *Guinness Book of Records*: every word pored over, analyzed and double-checked for accuracy. They'd have given antigravity a very wide berth.

For a story like this, what I was looking for was a news publication.

I looked along the shelves again. Jane's had gotten into the magazine publishing business relatively recently and the company's copies of *Flight International* and *Aviation Week* ran back only a few years. But it did have bound volumes of *Interavia Aerospace Review* from before the Second World War. And it was on page 373 in the May 1956 edition of this well-respected publication, in among advertisements for Constellation airliners, chunky-looking bits of radar equipment and (curiously for an aviation journal) huge "portable" Olivetti typewriters, that I found a feature bylined "Intel, Washington, D.C." with the headline: "Without Stress or Strain . . . or Weight." Beneath it ran the strapline: "The following article is by an American journalist who has long taken a keen interest in questions of theoretical physics and has been recommended to the Editors as having close connections with scientific circles in the United States. The subject is one of immediate interest, and *Interavia* would welcome further comment from knowledgeable sources."

The article referred to something called "electro-gravitics" research, whose aim was to "seek the source of gravity and its control." This research, "Intel" stated, had "reached a stage where profound implications for the entire human race are beginning to emerge."

I read on, amused by the tone and wondering how on earth the article had come to be accepted in a mainstream aerospace journal.

"In the still short life of the turbojet airplane [by then, 1956, little more than a decade], man has had to increase power in the form of brute thrust some twenty times in order to achieve just twice the speed. The cost in money in reaching this point has been prodigious. The cost in highly specialized man-hours is even greater. By his present methods man actually fights in direct combat the forces that resist his efforts. In conquering gravity he would be putting one of his most competent adversaries to work for him. Antigravitics is the method of the picklock rather than the sledgehammer."

Not only that, the article stated, but antigravity could be put to work in other fields beyond aerospace. "In road cars, trains and boats the headaches of transmission of power from the engine to the wheels or propellers would simply cease to exist. Construction of bridges and big buildings would be greatly simplified by temporary induced weightlessness etc. Other facets of work now under way indicate the possibility of close controls over the growth of plant life; new therapeutic techniques; permanent fuelless heating units for homes and industrial establishments; new sources of industrial power; new manufacturing techniques; a whole field of new chemistry. The list is endless . . . and growing."

It was also sheer fantasy.

Yet, for the second time in a week I had found an article—this time certainly in a publication with a solid reputation—that stated that U.S. aerospace companies were engaged in the study of this "science." It cited the same firms mentioned by Gladych and some new ones as well: Sperry-Rand and

General Electric among them. Within these institutions, we were supposed to believe, people were working on theories that could not only make materials weightless, but could actually give them “negative weight”—a repulsive force that would allow them to loft away “contra-gravitationally.” The article went further. It claimed that in experimentation conducted by a certain “Townsend T. Brown” weights of some materials had already been cut by as much as 30 percent by “energizing” them and that model “disc airfoils” utilizing this technology had been run in a wind tunnel under a charge of a hundred and fifty kilovolts “with results so impressive as to be highly classified.”

I gazed out over the slate rooftops. For *Interavia* to have written about antigravity, there had to have been something in it. The trouble was, it was history. My bread-and-butter beat was the aerospace industry of the 1990s, not this distant cozy world of the fifties with its heady whiff of jet-engine spin and the developing Cold War.

I replaced the volume and returned to my desk. It should have been easy to let go, but it wasn't. The people of the caliber quoted by Gladych and *Interavia* had started talking about antigravity anytime in the past ten years I would have reported it—however skeptical I might be on a personal level. Why had these people said the things they had with such conviction? One of them, George S. Trimble, had gone so far as to predict that a breakthrough would occur in around the same time it took to develop the atomic bomb—roughly five years. Yet, it had never happened. And even if the results of “Townsend T. Brown's” experiments had been “so impressive as to be highly classified,” they had clearly come to naught; otherwise, by the '60s or '70s the industry would have been overtaken by fuelless propulsion technology.

I rang a public relations contact at Lockheed Martin, the U.S. aerospace and defense giant, to see if I could get anything on the individuals Gladych had quoted. I knew that Lawrence Bell and Bill Leary were both dead. But what about George S. Trimble? If Trimble was alive—and it was a long shot since he would have to be in his 80s—he would undoubtedly confirm what I felt I knew to be true; that he had been heavily misquoted or that antigravity had been the industry's silly-season story of 1956.

A simple phone call would do the trick.

Daniella “Dani” Abelman was an old media contact within Lockheed Martin's public affairs organization. Solid, reliable and likable, she'd grown up in the industry alongside me, only on the other side of the divide. Our relationship with the information managers of the aerospace and defense world was as double-edged as the PR/reporter interface in any other industry. Our job was to get the lowdown on the inside track and, more often than not, it was bad news that sold. But unlike our national newspaper counterparts, trade press hacks have to work within the industry, not outside it. This always added an extra twist to our quest for information. The industry comprised hundreds of thousands of people, but despite its size, it was surprisingly intimate and incestuous enough for everyone to know everyone else. If you pissed off a PR manager in one company, even if it was on the other side of the globe, you wouldn't last long, because word would quickly get around and the flow of information would dry up.

But with Abelman, it was easy. I liked her. We got on. I told her I needed some background on an individual in one of Lockheed Martin's “heritage” companies, a euphemism for a firm it had long since swallowed whole.

The Glenn L. Martin Company became the Martin Company in 1957. In 1961, it merged with the American-Marietta Company, becoming Martin-Marietta, a huge force in the Cold War U.S. defense electronics industry. In 1994, Martin-Marietta merged again, this time with Lockheed to form Lockheed Martin. The first of the global mega-merged defense behemoths, it built everything from stealth fighters and their guided weapons to space launchers and satellites.

Abelman was naturally suspicious when I told her I needed to trace an ex-company employee, but relaxed when I said that the person I was interested in had been doing his thing more than 40 years ago and was quite likely dead by now.

I was circumspect about the reasons for the approach, knowing full well if I told her the real story she'd think I'd taken leave of my senses.

But I had a bona fide reason for calling her—and one that legitimately, if at a stretch, involved Trimble: I was preparing a piece on the emergence of the U.S. aerospace industry's "special projects" facilities in the aftermath of the Cold War.

Most large aerospace and defense companies had a special projects unit; a clandestine adjunct to their main business lines where classified activities could take place. The shining example was the Lockheed Martin "Skunk Works," a near-legendary aircraft-manufacturing facility on the edge of the California high desert.

For 50 years, the Skunk Works had sifted Lockheed for its most highly skilled engineers, putting them to work on top secret aircraft projects.

Using this approach it had delivered some of the biggest military breakthroughs of the 20th century, among them the world's first Mach 3 spyplane and stealth, the art of making aircraft "invisible" to radar and other enemy sensor systems.

But now the Skunk Works was coming out of the shadows and, in the process, giving something back to its parent organization. Special projects units were renowned for bringing in complex, high-risk defense programs on time and to cost, a skill that had become highly sought after by the main body of the company in the austere budget environment of the 1990s.

Trimble, I suggested, might be able to provide me with historical context and "color" in an otherwise dry business story. "Advanced Programs," the outfit he was supposed to have worked for, sounded a lot like Martin's version of the Skunk Works.

Abelman said she'd see what she could do, but I wasn't to expect any short-order miracles. She wasn't the company historian, she said dryly, but she'd make a few inquiries and get back to me.

I was surprised when she phoned me a few hours later. Company records, to her surprise—and mine—said that Trimble was alive and enjoying retirement in Arizona. "Sounds hard as nails, but an amazing guy by all accounts," she breezed. "He's kinda mystified why you want to talk to him after all this time, but seems okay with it. Like you said, it's historical, right?"

"Right," I said.

I asked Abelman, while she was at it, for all the background she had on the man. History or not, said, trying to keep it light, I liked to be thorough. She was professional enough to sound less than convinced by my newfound interest in the past, but promised she'd do her best. I thanked her, then hung up, feeling happy that I'd done something about it. A few weeks, a month at the outside, the mystery would be resolved and I could go back to my regular beat, case closed.

Outside, another bank of gray storm clouds was rolling in above rooftops that were still slick from the last passing shower.

I picked up my coat and headed for the train station, knowing that somewhere between the office and my flat in central London I was going to get soaked right through.

The initial information came a week later from a search through some old files that I'd buried in a collection of boxes in my basement: a company history of Martin Marietta I'd barely remembered I'd acquired. It told me that in 1955 Trimble had become involved in something called the Research Institute for Advanced Studies, RIAS, a Martin spin-off organization whose brief was to "observe the phenomena of nature . . . to discover fundamental laws . . . and to evolve new technical concepts for the improvement and welfare of mankind."

Aside from the philanthropic tone, a couple of things struck me as fishy about the RIAS. First of all, its name was as bland as the carefully chosen "Advanced Development Projects"—the official title of the Skunk Works. Second, was the nature and caliber of its recruits. These, according to the company history, were "world-class contributors in mathematics, physics, biology and materials science."

Soon afterward, I received a package of requested information from Lockheed Martin in the mail. RIAS no longer existed, having been subsumed by other parts of the Lockheed Martin empire. But through an old RIAS history, a brochure published in 1980 to celebrate the organization's "first 25 years," I was able to glean a little more about Trimble and the outfit he'd inspired. It described him as "one of the most creative and imaginative people that ever worked for the Company."

I read on.

From a nucleus of people that in 1955 met in a conference room at the Martin Company's Middle River plant in Maryland, RIAS soon developed a need for its own space. In 1957, with a staff of about 25 people, it moved to Baltimore City. The initial research program, the brochure said, was focused on NASA and the agency's stated goal of putting a man on the moon. But that wasn't until 1961.

One obvious question was, what had RIAS been doing in the interim? Mainly math, by the look of it. Its principal academic was described as an expert in "topology and nonlinear differential equations."

I hadn't the least idea what that meant.

In 1957, the outfit moved again, this time to a large mansion on the edge of Baltimore, a place chosen for its "campus-like" atmosphere. Offices were quickly carved from bedrooms and workshops, and garages from garages.

It reminded me of accounts I'd read of the shirtsleeves atmosphere of the early days of the Manhattan Project when Oppenheimer and his team of atom scientists had crunched through the physics of the bomb.

And that was the very same analogy Trimble had used. The conquest of gravity, he'd said, would come in the time it took to build the bomb.

I called a few contacts on the science and engineering side of Lockheed Martin, asking them, in a roundabout kind of way, whether there was, or ever had been, any part of the corporation involved in gravity or "counter-gravitational" research. After some initial questions on their part as to why I should be interested, which I just about managed to palm off, the answer that came back was a uniform "no." Well, almost. There was a guy, one contact told me, a scientist who worked in the combat aircraft division in Fort Worth who would talk eloquently about the mysteries of Nature and the universe to anyone who would listen. He'd also levitate paper clips on his desk. Great character but a bit of a maverick.

"Paper clips?" I'd asked. "A maverick scientist levitating paper clips on his desk? At Lockheed Martin? Come on."

My source laughed. If he hadn't known better, he'd have said I was working up a story on antigravity.

I made my excuses and signed off. It was crazy, possibly dangerous stuff, but it continued to have me intrigued.

I called an old friend who'd gained a degree in applied mathematics. Tentatively, I asked whether topology and nondifferential linear equations had any application to the study of gravity.

Of course, he replied. Topology—the study of shape in physics—and nonlinear equations were the standard methods for calculating gravitational attraction.

I sat back and pieced together what I had. It didn't amount to much, but did it amount to something?

In 1957, George S. Trimble, one of the leading aerospace engineers in the U.S. at that time, a man it could safely be said, with a background in highly advanced concepts and classified activity, had put together what looked like a special projects team; one with a curious task.

This, just a year after he started talking about the Golden Age of Antigravity that would sweep through the industry starting in the 1960s.

So, what went wrong?

In its current literature, the stuff pumped out in press releases all the time, the U.S. Air Force constantly talked up the "vision": where it was going to be in 25 years, how it was going to wage and win future wars and how technology was key.

In 1956, it would have been as curious as I was about the notion of a fuelless propulsion source, or

that could deliver phenomenal performance gains over a jet; perhaps including the ability to accelerate rapidly, to pull hairpin turns without crushing the pilot and to achieve speeds that defied the imagination. In short, it would have given them something that resembled a UFO.

I rubbed my eyes. The dim pool of light that had illuminated the Lockheed-supplied material of Trimble and RIAS had brought on a nagging pain in the back of my head. The evidence was suggesting that in the mid-'50s there had been some kind of breakthrough in the antigravity field and for a small window in time people had talked about it freely and openly, believing they were witnessing the dawn of a new era, one that would benefit the whole of mankind.

Then, in 1957, everyone had stopped talking about it. Had the military woken up to what was happening, bringing the clamps down?

Those in the know, outfits like Trimble's that had been at the forefront of the breakthrough, would probably have continued their research, assembling their development teams behind closed doors, ready for the day they could build real hardware.

But of course, it never happened.

It never happened because soon after Trimble, Bell and Lear made their statements, sanity prevailed. By 1960, it was like the whole episode never took place. Aerospace development continued along its structured, ordered pathway and antigravity became one of those taboo subjects that people like me never, ever talked about.

Satisfied that everything was back in its place and as it should be, I went to bed.

Somewhere in my head I was still tracking the shrill, faraway sounds of the city when the phone rang. I could tell instantly it was Abelman. Separated by an ocean and five time zones, I heard the catch in her breathing.

"It's Trimble," she said. "The guy just got off the phone to me. Remember how he was fine to do the interview? Well, something's happened. I don't know who this old man is or what he once was, but he told me in no uncertain terms to get off his case. He doesn't want to speak to me and he doesn't want to speak to you, not now, not ever. I don't mind telling you that he sounded scared and I don't like to hear old men scared. It makes me scared. I don't know what you were really working on when you came to me with this, Nick, but let me give you some advice. Stick to what you know about; stick to the damned present. It's better that way for all of us."

Chapter 2

In 1667, Newton mathematically deduced the nature of gravity, demonstrating that the same force that pulls an apple down to earth also keeps the moon in its orbit and accounts for the revolutions of the planets. But today, we are still thwarted in attempts to measure it with any great precision. In laboratory experiments carried out since the 1930s, G has consistently defied efforts to be measured to more than a few decimal places.

This was what the reference books told me as I plowed through a stack of standard science works in the musty, gothic surroundings of the local library.

It was intensive work. Science was something I'd come to associate with the grind of exams. It didn't feel like the beginnings of a journalistic investigation.

I continued to scratch notes. But Newton openly stated that he had no idea what gravity actually was. All he knew was that it had to be caused by something.

The idea that a body may act on another through the vacuum of space over huge distances “without the mediation of anything else . . . is to me so great an absurdity that I believe no man can ever fall into it. Gravity must be caused . . . but whether this agent be material or immaterial I have left to the consideration of my reader.”

I glanced up. The librarian, who'd been waiting to catch my eye, nodded toward the clock on the wall behind her. I looked around and realized I was the only person in the room. I'd lost track; it was Saturday and the library closed early.

Outside, the rain had given way to the starlit sky of a passing cold front. I pulled up my collar and started down the street, dodging puddles that shimmered under the streetlights. The anomaly over gravity's measurement and the uncertainties over its causes only served to tell me how incomplete my knowledge of physics was.

I reached the edge of the common. The lights of my home street were faintly visible through the trees. I thought about my late-night call from Abelman. In the week since her approach to Trimble and his initial favorable response to the idea of an interview, it very much appeared that somebody had gotten to him. And then I thought about what I had just learned. If we had no real understanding of gravity, how could people say with such certainty that *antigravity* could not exist?

In 1990, the U.S. Air Force had been looking at developing a weapon capable of firing a “plasma bullet”—a doughnut-shaped ring of ionized gas—at 10,000 kilometers per second.

Shiva Star was capable of generating and holding up to 10 megajoules of electrical energy and had a potential 10 trillion watts—three times as much as the entire U.S. electricity grid carried in a year. *A*

the time that I visited Shiva, which was located within the USAF's directed energy research laboratory at Kirtland Air Force Base in New Mexico, program engineers had been readying to fire a plasma bullet sometime in 1995. The purpose of the bullet was to destroy incoming Russian nuclear warheads, and, despite some fierce technological challenges, the program engineers were confident they could do it. But several years later, when I returned to Kirtland, it was like the plasma bullet project never existed. Engineers had difficulty even recalling it.

Officially, it had been terminated on cost grounds. But this made little sense. The program had been budgeted at \$3.6 million per year for five years. Eighteen million bucks to produce a true quantum leap weapon system. Few people I spoke to bought the official version. Somewhere along the way, they said, Shiva must have delivered. Somewhere along the line, the program had gone black.

I coupled this knowledge with what the antigravity proponents had been saying in 1956. If you could find a way of shielding objects from the effects of gravity, the military, let alone the economy, ramifications would be enormous.

Aircraft propulsion seems to have progressed little in appreciable terms since the advent of the jet engine in the 1940s. Incremental improvements for decades have been of the order of a few percentage points. The fastest aircraft in the world—officially, at least—is still the Lockheed Blackbird, designed in the late 1950s, first flown in 1962 and retired in 1990.

Amongst my peers, there had been speculation since the late 1980s about the existence of a secret replacement for the Blackbird, a mythical plane called Aurora that supposedly flew twice as fast as on the edges of space.

I had no direct evidence of Aurora, but then I'd never gone looking for it either. On balance, though, I felt *something* had been developed.

In 1992, circumstantial evidence of Aurora's existence was strengthened when *Jane's Defence Weekly* carried a detailed sighting of a massive triangular-shaped aircraft spotted in formation with USAF F-111 bombers and an air-refueling tanker above an oil rig in the North Sea. The sighting was credible because it was witnessed by a highly trained aircraft recognition expert in the Royal Observer Corps who happened to be on the rig at the time.

Shiva had been my first brush with the "black" world, the Pentagon's hidden reservoir of defense programs—projects so secret that officially they did not exist. Since then, I'd felt the presence of other deep black projects, but only indirectly.

Looking for the black world was like looking for evidence of black holes. You couldn't see a black hole, no matter how powerful your telescope, because its pull sucked in everything around it, including the light of neighboring stars. But astronomers knew that black holes existed because of the intense friction they generated on their edges. It was this that gave them away.

Forty years ago, the people in charge of the Air Force's hidden budget would have been quick to see the extraordinary implication of Trimble's message; that there would be no limit—no limit at all—the potential of an antigravity aerospace vehicle.

The black world would have thrilled to the notion of a science that did not exist.

As I crossed from the park back into the glare of the streetlights, I knew I was quite possibly staring at a secret that had been buried more than 40 years deep.

I called Lawrence Cross, an aerospace journalist from the circuit, an ex-Jane's man, now a bureau chief for a rival publication in Australia.

Cross and I had spent long hours ruminating on the existence of U.S. Air Force black programs and the kind of technologies the Air Force might be pursuing in ultrasecrecy.

I liked Cross, because he had his feet squarely on the ground, was a hell of a good reporter, but wasn't your average dyed-in-the-wool-type hack. It had been a while since we had spoken.

The phone rang for ages. It was ten at night my time, eight in the morning his; and it was the weekend. I could hear the sleep in his voice when he finally picked up the handset. In the background a baby was crying. Cross had three kids under six years old. Ninety percent of the time he looked completely exhausted.

He remained quiet as I sketched out the events of the past weeks. I told him about the article, Trimble's initial willingness to be interviewed, then the phone call from Abelman and her insistence on Trimble's say-so, that I drop the whole business.

"This is interesting," he said, stifling a yawn, "but why the long-distance call?"

"I wanted to tap you on one of your case studies."

"Uh-huh." He sounded wary, more alert suddenly. "Which one?"

"Belgium," I said. "Wasn't there some kind of flap there a year or two back?"

"You could say that. Hundreds of people reported seeing triangular-shaped craft all over the country in two 24-hour waves—one in 1989, the other in 1990. The Belgian Air Force even scrambled F-16s to intercept them. Why the sudden interest?"

"You once told me that those craft might have been the result of some kind of secret U.S. development effort."

Cross laughed. "Maybe I did. But I've had time to study the official reports since—the ones put out by the Belgian government. Those craft were totally silent. They hovered, often very close to witnesses, and they never made a sound. You may find my take on this hard to swallow, but there is no technology—no technology on earth—that could produce that kind of performance."

"Didn't the Belgian press try to tag the sightings to Aurora?"

"Yes, but you and I know that that's crazy. Even if Aurora is real, don't tell me it can remain stationary one moment and fly Mach 7 the next. And without making a sound. Belgian radar tracked

these things. The tapes show that they pulled turns of around 20 to 40 g—enough to kill a human pilot.” He paused. “You’re not seriously suggesting what I think you’re suggesting, are you?”

“A 40-year U.S. development effort, in the black, to make antigravity technology a reality? Why not? They were talking about it openly in 1956, Lawrence, then it dropped off the scope. Completely and utterly, like somebody orchestrated the disappearance. It makes me want to consider the possibility, at least, that someone achieved a breakthrough and the whole thing went super-classified.”

“And now you’ve got the bit between your teeth?”

“Something like that, yes.”

For a long moment, Cross fell silent. Then I heard him light a cigarette. In the background, I heard his wife calling him. Then he cupped the receiver, because I caught his voice, muffled, telling her he’d be there in a minute. The baby was still bawling its lungs out.

“If you break cover on this,” he said, “you’ll blow everything. For yourself, I mean.”

“Come on,” I said, “it’s a story. It may be an old story, but I’ll apply the rules that I would on another. If there’s any truth in it, the answers will pop out. They usually do.”

“That’s so bloody naive. If there is any truth in it, which I doubt, they’ll already know you’re interested and that’s not going to help you one little bit. They’ll stand in your way, like they may have done already with this old man . . . Trimble? If there isn’t any truth in it, then you’re just going to look like a fucking idiot.”

“They, Lawrence? Who’s they?”

“The security people. The keepers of the secrets. The men-in-black. You know who I mean.”

I didn’t. To my ears, it sounded more than a little insane.

“I’m going to bide my time,” I said, returning to the reason for the call, “do this at my own pace. For the moment, there’s no need for me to break cover. Right now, all I have to do is conduct some low-level research and keep my eyes and ears open when I’m out there in the field. No one has to know about any of this, Lawrence. All I’m asking for in the meantime is a little help. Some of your knowledge. A few facts.”

“Listen,” he said, “there are no facts in this field; the whole business, if you want to know, is rife with disinformation, much of it, in my opinion, deliberately orchestrated. Sooner or later, you’re going to have to surface and when you do, some of that crazy UFO spin is going to rub off on you. That happens and you’ll never eat lunch in this great industry of ours again. Do you understand what I’m saying?”

And then his tone softened. “I’ve got to go now, but if you really are hell-bent on taking this forward, you might want to try an outfit in Washington, D.C., called the Integrity Research Institute. They have a handle on some of this material. Just promise me you’ll keep my name out of it, okay?”

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