

THE FALCON AND THE SNOWMAN

A TRUE STORY OF FRIENDSHIP
AND ESPIONAGE

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and Chris struggled to dampen the drug-induced sense of euphoria. The briefing officer was Larry Rogers, whose comings and goings around the plant had had a quality of mystery; something to do with a classified project.

In a voice that lowered noticeably as he began, Rogers told Chris that the work in this section of the plant involved secret projects, and he explained that Chris had been specially cleared by the government to work on them.

Chris, noticing what he thought was a curious glint of suspicion in Rogers' eyes, wondered if Rogers knew he was high; he tried to look straight ahead and concentrate.

Rogers ordered Chris never to discuss with anyone the briefing he was about to give; never to divulge to anyone the existence of the projects of which he was about to hear, or discuss with anyone the kind of work he was to do; and never to mention to anyone not cleared for the projects their code names or the fact that they were clandestine operations of the Central Intelligence Agency.

In fact, he ordered, never mention to anyone—his family, his girlfriends, any outsiders—that the CIA had any relationship whatsoever with TRW, or that his salary was being paid by the CIA under a contract with TRW. *What the hell is he talking about?* Chris wondered.

Rogers then introduced Chris to what he called "the black world. . . ."

Orbiting satellites, he went on, were to a large extent taking over much of the work of human spies for the United States. And, he continued, TRW was one of a handful of American companies in the business of developing and manufacturing the satellites used by the CIA to collect secret intelligence information from space. Chris, he said, had been selected to serve on the team that operated some of these satellites. . . .

Chris had stumbled into one of the most secret of all American espionage operations—an invisible intelligence bureaucracy supervised from the White House by the National Security Council and entrusted with the responsibility to ferret out and analyze secrets about the Soviet Union, China and other countries. Cameras carried in the satellites could photograph missile bases, airfields, submarine pens, harbors and other defense installations from a hundred miles or more in space with such clarity that they could pinpoint a single man walking

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office building near Los Angeles International Airport, and Norman occasionally dropped by the bar and pool hall where Chris worked at night. Chris was supposed to close the bar at 2 A.M., but he got so tired of breaking up fights among the patrons on some nights that he sometimes closed early. After a while, even amphetamines didn't keep him awake when he arrived for work in the vault, and on the day before Christmas, 1974, he quit.

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Because the vault was off limits to guards and even to most senior executives at TRW, Chris discovered it was used as a kind of private playpen by the select group that was allowed inside. When traffic with Pilot was slow, Norman, Laurie and a handful of their friends came in for cocktails, or to gossip or play Risk, a game distantly related to Monopoly. When the liquor they hid in the vault ran out, Chris or somebody else went on what they all called a "booze run" to a nearby liquor store, carrying the liquor into the plant in a briefcase or other container as if it were classified data bound for the code room. The guards never asked any questions. Morning visitors to the vault could expect vodka-and-orange juice; afternoons, there was often peppermint Schnapps, red wine or daiquiris whipped up in the CIA's document-destruction blender. The vault became an increasingly popular place.

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As 1975 began, the domestic political pot was reaching a boil in Australia, the destination for many of the messages from Pedal. And in certain components of the United States Government, uneasiness was mounting about the political heat Down Under.

In 1968, Australia and the United States had signed an agreement providing for the establishment of CIA bases at Pine Gap and Murrumbidgee, near Alice Springs in Central Australia, about two thousand miles northwest of Sydney. The bases sprawled over more than four square miles of bush country. Their function was to control and gather data sent back from space by spy satellites. But the Australian public had never been informed that this was the purpose of the bases. Although there had been occasional speculation in the Australian press that they had a military function that might invite a Soviet attack on Australia in the event of a U.S.-U.S.S.R. war, officially the Australian Government described the bases as "space research stations" operated by the

U.S. Defense Department jointly with Australia. The impression was left—purposefully—that these remote bases were dedicated to the peaceful pursuit of knowledge about the universe.

Despite probings by the Australian press, no one had ever publicly made a connection between the CIA and the facilities. This was highly satisfactory to the CIA, which regarded the listening posts as crucial to American intelligence operations.

An upset victory in 1972 by the Australian Labour Party and the election of Gough Whitlam as prime minister sent jitters through the CIA. The agency feared that a left-leaning government in Australia might reveal the function of the bases or, worse, abrogate the agreement and close down the facilities.

Because of these fears and apprehension that the KGB might find it easy to penetrate a labor government, the CIA decided to limit the information it made available to the Australian Security and Intelligence Service, the Australian CIA. To the American CIA, there were high stakes involved in the bases, and not surprisingly, it meant to keep them. Despite professions of loyalty from Whitlam to the American-Australian alliance, apprehension about an anti-U.S. shift in Australian policy continued to grow within the Central Intelligence Agency.

And in the minds of certain officials within the CIA, these fears were soon validated. One of Whitlam's first acts after becoming prime minister was to tweak the United States by withdrawing Australian troops from Vietnam, and in 1973 he publicly denounced the American bombing of Hanoi, enraging President Nixon.

Meanwhile, strident demands for official explanation of the American bases were being voiced increasingly by some members of the Labour Party. The CIA, convinced that the future of facilities vital to the security of the United States was jeopardized by a potentially unfriendly government, placed the highest priority on ensuring the survival of the bases and secretly poured money heavily into the opposition Liberal and National Country parties. The CIA wanted Whitlam out.

As he worked at his new job, Chris wasn't aware of such machinations more than eight thousand miles away. But one day, while looking over encrypted TWX traffic from Langley, he read with fascination the

said angrily. "I'm risking my life. Big fuckin' joke; it wasn't funny." But, correctly, Chris pointed out that Daulton had returned with another envelope filled with cash, and that in itself, he said, proved his point. Daulton said he had to agree, and they both burst into smug laughter. Daulton could not forget the eager look on the Russian's face. Nevertheless, he said, "*Please* try to get something good next time." Then he filled Chris in on more of the details of his trip. They passed a joint back and forth and decided that since Daulton had a code name, Chris should have one too. Daulton thought of one, and they agreed on it: "Falcon."

23 FAR FROM PALOS VERDES, Redondo Beach or Mexico City, the simmering political dispute in Australia over the American bases near Alice Springs was coming to a boil in October of 1975.

Whether or not the controversy over the secret bases was fueled by facts leaked to Labour Party members or the press by the KGB—information the KGB had purchased in Mexico City from two young Americans—is a matter for conjecture. But one thing was obvious: politically damaging hints about the CIA's activities in Australia were coming from somewhere and threatening to ignite a fire storm that might consume the bases politically.

Cables flew back and forth between Canberra and Washington. On the day following Whitlam's speech, senior Australian military and intelligence officials in Canberra briefed Queen Elizabeth's governor-general, Sir John Kerr (who had a personal background in military intelligence during World War II), and advised him of the CIA's grave apprehension that public discussion of the facilities could be disastrous.

On November 10, 1975, five days after Daulton's latest delivery in Mexico City, the Australian Security Intelligence Organization received a message from its liaison officer with the CIA in Washington.

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Repeating expressions of concern voiced previously by the U.S. intelligence agency over public discussion of the bases, he said he had just returned from a meeting with senior CIA representatives and, attempting to summarize its contents, he reported:

CIA IS PERPLEXED AS TO WHAT ALL THIS MEANS. DOES THIS SIGNIFY SOME CHANGE IN OUR BILATERAL INTELLIGENCE SECURITY RELATED FIELD. CIA CANNOT SEE HOW THIS DIALOGUE WITH CONTINUED REFERENCE TO CIA CAN DO OTHER THAN BLOW THE LID OFF THOSE INSTALLATIONS IN AUSTRALIA WHERE THE PERSONS CONCERNED HAVE BEEN WORKING AND THAT ARE VITAL TO BOTH OUR SERVICES AND COUNTRIES, PARTICULARLY THE INSTALLATIONS AT ALICE SPRINGS.

Nevertheless, members of the Labour Party were increasingly raising public inquiries and making pointed comments about the mysterious facilities. Late in October the Government revealed that construction of the bases had not been supervised by the U.S. Department of Defense, as claimed by the previous government, but by a CIA official, whose name became public. It was revealed during inquiries by Labour Party members that not even senior members of the Australian Foreign Ministry had been told the exact function of the bases.

But the mystery over the purpose of the bases in the Australian desert was not the only one being talked about regarding the CIA.

Prime Minister Whitlam began to charge in public that the American intelligence organization—which at that time was incurring growing international notoriety over its suspected machinations in Chile—had tampered with the Australian political process by secretly channeling funds to his opponents in the Liberal and National Country parties—politicians who had supported the American bases. Whitlam demanded an investigation by the Australian Defense Department to identify, once and for all, the real purpose of the bases.

In early November, the Prime Minister said in a speech that he had confirmed reports the CIA had indeed built the facilities. This official acknowledgment of the CIA's role in Australia intensified the crisis atmosphere within certain components of the CIA, where it was feared the political brouhaha could explode and force closing of the bases. The threat was perceived as anything but a minor matter. Within the National Security Council, the bases were considered absolutely vital to America's survivability in an era of nuclear warfare, not only be-

cause of Projects Rhyolite and Argus but because of other satellite espionage systems that were considered indispensable to the country's efforts to keep a constant eye on Soviet military preparedness.

The message from Washington concluded with a warning that if public discussion of CIA operations and facilities in Australia continued, the United States might see fit to stop sharing its intelligence information with Australia. (At the time, Australia had thought it was receiving *all* of the information from the satellites.)

What other steps the CIA took to protect its bases and ensure a friendly government in Canberra are not known.

On November 11, Prime Minister Whitlam had scheduled another speech in which he was to discuss the CIA and the mysterious installations in the Outback.

But he never got a chance to deliver it. On that day, Governor-General Sir John Kerr removed him from office.

24 ROBERT LANGSTROTH, a twenty-eight-year-old Vietnam veteran who found a job with the Palos Verdes Estates Police Department when he came back from the war, was at the wheel of a city police car about six o'clock on a Saturday night three weeks before Christmas in 1975. It was nearly dark, with only an orange-and-rose haze still lingering over the Pacific as he guided the black-and-white Dodge past the oceanfront homes lining Paseo del Mar.

Langstroth had just rounded a curve near the Lee family's silver-gray home when he saw a red sports car about fifty yards ahead of him and noticed that the red reflector was missing from one of the car's taillights. He decided to stop the car and advise the driver, thinking he probably wasn't aware of it.

Switching on his red lights, Langstroth moved in behind the sports car.

Daulton looked in his mirror and was startled by the glowing double

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red eyes behind him. He speed-shifted the MG into second without hesitating and jammed his foot on the accelerator. By the time he was at the first corner, the roadster was doing 80. Daulton took this corner without moving his foot off the gas; the police car, its siren screaming, however, stayed right behind him, and the two vehicles roared through the neighborhood of some of Palos Verdes' most expensive homes.

When he reached Palos Verdes Drive, a four-lane divided highway that hugged the ocean, Daulton turned right without stopping and picked up speed, missing an oncoming station wagon by eight or ten feet. When Langstroth followed him around the corner, he had even less room to spare.

With open road ahead of him, Daulton floored the agile roadster, and was soon careening at more than 100 miles an hour along the curving drive that clung to a rocky bluff high above a stretch of turbulent white surf.

Langstroth saw a small package sail out of the speeding car; but before he could react, the MG swerved off the highway into the dirt center divider strip, digging up such a cloud of dust that for a moment Langstroth lost the red car in his headlights. The policeman now expected the driver to make a quick U-turn on the divider strip, and he slowed to loop around behind him.

But instead of slowing and turning in the opposite direction, Daulton gunned the engine and headed south again—going the wrong way in the one-way lane.

Sitting beside Daulton in the car, Peter Frank begged for him to stop. A high school friend and fellow falconer, Frank had been visiting Daulton at his home when Daulton suggested they go for a ride in the MG, which was owned by his brother, David.

Rocketing south on the northbound road, Daulton said he couldn't stop.

"They've got a warrant out on me," he said.

At that moment Frank saw a Pontiac headed directly at them and shouted, "Turn, turn!"

Daulton yanked the steering wheel and the car bounced back into the divider strip, out of the path of the Pontiac, and skidded crazily in the dirt. The MG shuddered as Daulton pressed the accelerator and tried to get it moving again in the loose dirt. As the car's wheels groped for traction and momentarily spun, Frank opened the door and threw himself out.

Langstroth saw a young man with shoulder-length brown hair, wearing Levi's and a blue Levi jacket, but lost him as he sprinted in the direction of the ocean cliffs.

Daulton finally managed to get the car under control and back onto Palos Verdes Drive, and tried to lose the policeman by using the sports car's maneuverability to turn sharply into a residential neighborhood.

Langstroth saw him make the turn, and started to follow, but the police car was traveling at almost 100 miles an hour. He fought the wheel to stay with the MG, but his prowl car was too heavy and was going too fast, and it went into a long, sweeping skid.

Langstroth spotted another car headed directly at him. It was northbound on Palos Verdes Drive. The driver had begun to heed the red light and siren and was pulling to a stop. But the wheels of Langstroth's patrol car were locked and he was skidding, and there was nothing he could do except wait for the impact. The police car slammed into the other vehicle and spun around. But Langstroth discovered his car was still operable, and he picked up the pursuit.

Once again Daulton was headed south in the northbound lanes. Northbound cars, bewildered by the sight of Daulton's approaching headlights and the flashing red lights behind them, peeled off onto the shoulder like birds scattering from the sight of a man with a gun. At the foot of Hawthorne Boulevard, just where it slopes down and ends at the ocean, Daulton turned left and began to climb up the slope in the direction of Los Angeles. Then, in another try to lose the cop, he made a sharp turn and veered onto a steep incline leading to a residential side street.

This time Langstroth was ready and stayed right behind him. For Daulton, the turn was a mistake: he had to slow the MG to 60 miles an hour as it rose up the hill, and the more powerful engine in Langstroth's car began to close the gap.

Still, Daulton gave no sign of abandoning his run. The policeman decided there was only one way he could stop the fugitive. He accelerated the police car and aimed it directly at the rear of the laboring MG.

He struck it, and Daulton's car was rammed into a curb. He wasn't hurt, but he was stopped.

When the police discovered that the fleeing suspect had a wad of bills totaling \$302 in his pocket, Daulton was booked for armed robbery and reckless driving. Daulton scoffed at the robbery charge and said he could settle everything.

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Detectives were called to the Palos Verdes Estates Police Station from their homes and took the case over from the uniformed division. Daulton told the detectives that his name was Ted Lovelance and that he was a resident of Santa Cruz; he identified himself with his driver's license. He explained that he had been traveling down the coast from Santa Cruz to San Diego and in order to enjoy the scenery had passed through Palos Verdes Estates, where he had picked up a hitchhiker. He didn't know the hitchhiker's name, but he remembered that he wore Levi's and had shoulder-length hair. Everything had been normal, he continued, until the police car tried to stop him; when the red lights went on, he said, the hitchhiker had drawn a gun and told him to lose the patrol car. After that, Daulton said, he had had no choice but to obey out of fear for his life.

"Why didn't you stop when he jumped out?" a detective asked incredulously.

"I wanted to get as far away from that guy as I could."

"What about the money?"

"It's for my vacation."

Another detective who was standing by during the questioning picked up the driver's license and took a second look at Daulton. The license said the driver was five feet five. He noticed that Daulton was several inches shorter. The detectives conferred in another room, and one recalled that there was a felony warrant outstanding for a drug pusher who was quite short—just like this suspect.

After a check of the files, a detective returned to Daulton and asked him to roll up the sleeves of his shirt to the elbows. Daulton silently complied.

The officers saw a panorama of inflamed skin. The blotches weren't drug-injection puncture marks, as the cops thought, but evidence of Daulton's old problem with acne. But they didn't believe it was acne.

"Are you a hype?" a policeman asked. Daulton repeatedly denied that he was an addict, but the red scars on his arm worked against him.

Finally, Daulton admitted his real name.

The robbery charge was dropped, and he was booked for reckless driving, resisting arrest, driving under the influence of a controlled substance and displaying a fictitious driver's license and as a fugitive wanted for violation of probation on drug charges.

Four days later, Daulton was out of jail.

He posted \$2,500 bail, including \$500 borrowed from Chris, who

extracted an I.O.U. in exchange for the loan for which he would be repaid after the next delivery to the Russians. Judge Burch Donahue said he would take up the case again in early January. Until then, at least, Daulton was back on the streets.

There were two postscripts to the chase: Officer Langstroth, in a case that would drag on unresolved for years, sued David Lee for more than \$1 million, because of back injuries he had received in the collision with the car which Lee owned. And when drugs were found in the other car that Langstroth collided with during the chase, a passenger was arrested for possession of illicit drugs.

Daulton's long-pending arrest warrant had finally caught up with him. Yet within two days of the arrest, he was out on bail. Over the next year, in a curious demonstration of the workings of the American judicial system, he would constantly be able to postpone his return to jail. Perhaps the system worked precisely as it was supposed to by giving Daulton every constitutional protection, every opportunity for rehabilitation—not only a second chance but third and fourth chances. Perhaps the system was abused. But because of a compliant court and the skills of an effective attorney, Daulton was able to avoid his final denouement on the drug charges for many months while continuing his transactions with the Russians.

His lawyer, Kenneth Kahn, was, like Daulton and Chris, a product of a particular time and place that had left a mark on him. Thirty-three years old, he had grown up in a poor family in Los Angeles, become a politically conservative American Legion "Boy of the Year" in high school, gotten high marks at the University of California at Los Angeles and entered Boalt Hall Law School at Berkeley. And there, like so many students at Berkeley in the sixties, he was radicalized. He joined the Free Speech Movement and other student protest groups and, after passing the bar, twice gave up his law practice—once to spend six months in the Federal prison on Terminal Island in California on a hashish-possession charge, and once to travel around the world. When he finally settled down, Ken Kahn discovered a lucrative specialty: defending the young drug dealers and users from the Palos Verdes Peninsula—a crop of defendants that, for many years, seemed inexhaustible, and many of whom became his friends.

With dense, curly brown hair, a curly moustache and muttonchops, Kahn was facetiously called "the hippie lawyer" by some of his col-

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leagues. He looked the part and liked the allusion. In court, he had a feisty style that some judges called abrasive—but he was very good at what he did, agilely challenging the constitutionality of police searches, seizures and arrests in order to keep his clients out of jail—or at least postpone their day of reckoning.

25

AS 1975 ENDED, each of the two young friends from Palos Verdes was facing a personal crisis that would make him more desperate.

There weren't any problems for Chris on the job: he was continuing to impress his TRW superiors as a likely candidate for promotion, and the CIA offered him another job—this time as a courier between the United States and the bases in Australia. He turned down the offer, realizing that before the CIA hired him he would have to take a lie-detector test that almost certainly would reveal his thefts from the Black Vault. Chris still hated the agency and what it stood for—more now than ever. But what had begun as an impulsive slap at a system he hated was becoming a nightmare. He constantly asked himself, Why haven't they caught us? Chris knew that Lee Harvey Oswald had visited the Soviet Embassy in Mexico City—the *same* embassy—and had been photographed by U.S. agents before John F. Kennedy was assassinated. He knew Daulton had entered the embassy twice. Surely, he told himself, someone must have spotted Daulton and discovered his transactions with the KGB.

There were not only the CIA and the FBI—and possibly the KGB—to worry about; there was Daulton himself. Somehow, the shape of his protest was being distorted. He now realized that Daulton was using some of the money he earned selling secrets about the satellites to expand his heroin trade, and occasionally Chris saw what it did to his customers: there were reports of two customers who had died from heroin overdoses and rumors of a third. One day, near the end of 1975, when Chris dropped by Daulton's home he found a girl, a high school student, lying on the living-room floor. Daulton and several friends were looking down at her, uncertain what to do. Heroin had trans-

the field with him for an hour or so. Almost every day Nurd got a cottontail, and one morning he caught two.

How long, he wondered, would it be before he was caught?

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On November 12, Chris was advised by the University of California at Riverside that he had been accepted for admission in the winter quarter, beginning in January, 1977. He informed TRW that he was returning to college and requested termination on December 17, after the company had had time to train a successor.

Now that he had made this decision, Chris decided to make one final gesture. There was no pressure from Daulton, no threats of blackmail. But he had promised Boris to make one last delivery, and he intended to keep it.

"They're catching on, I'm telling you, man, it's getting spooky," Daulton said when Chris told him they should make a final delivery. "They say the recent stuff isn't any good," he said. Chris said he shouldn't worry and then motivated Daulton with the kind of words that, as always, he knew would do the job: he said he had access to documents that he *knew* would be worth at least \$75,000 to the Soviets. Daulton listened and agreed. The documents were about a project, Chris said, that sounded as if it were "something out of the movies."

34

THE ESSENCE OF RUNNING an espionage network in a foreign country is communications. Whether an agent is recruited or planted in an unfriendly nation, whether his mission is to obtain secret information or to bring down a government, reliable communication between the agent and his intelligence service is essential. What good is the work of a spy who gleans warning of a coup d'état or an invasion if he can't transmit the information to his control? What good is an agent whose supervisor cannot control the spy and direct an espionage operation?

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Spies during the Napoleonic Wars used invisible ink to write messages concealed on harmless-looking public documents. German spies during World War I used hollowed stones to leave messages. Hidden radio transmitters in the Low Countries of Europe flashed reports of Nazi research on rockets during World War II.

The cameras, infrared heat sensors, radio antennae and other instruments on spy satellites revolutionized the collection of strategic intelligence information during the nineteen-sixties. But the science of communicating with individual agents remained rather primitive. The KGB gave Daulton a spool of adhesive tape to place on lampposts; it sent him coded postcards at a mail drop and gave him a schedule of prearranged telephone calls.

Late in the nineteen-sixties, the CIA began to fashion a scheme for a global grand design of espionage communications. It was to be the ultimate method of controlling and exchanging information with operatives working undercover in what the agency, euphemistically, called "denied areas of the world."

Earlier in the decade, the agency had begun using Pentagon communication satellites to exchange information with agents. With portable radio gear, spies could broadcast and receive information via the satellites. But these systems were only partially satisfactory. Agents in some regions of the world did not have access to them because, geographically, they were out of range of the satellites. Agents in other areas could use them only at limited times of the day, and the technology was such that a sophisticated counterintelligence service might cavedrop on the signals and discover the spy.

The grand design that began to take shape within the Central Intelligence Agency was a new kind of satellite system designed for, and dedicated solely to, espionage—a push-button system of communications that was to enable agency officials in Langley, Virginia, a suburb of Washington, to maintain, twenty-four hours a day, undetected communications with a spy anywhere in the world.

A spy was to be given a miniature, portable transceiver disguised in any number of ways: as a wallet, a pocket calculator, a cigarette case, an ashtray, a flashlight or something similarly mundane. No matter where he or she was located, the agent would be able to communicate secretly and instantaneously with Langley.

It was a concept with ingenious possibilities: a CIA officer could come to work after a morning round of golf in Virginia and hold a

two-way conversation of encrypted telegrams with an agent located on a roof in Cairo, then switch to an exchange of data with agents in Kiev, Peking or Entebbe.

In November, 1972, the CIA sent Lockheed, TRW and several other companies a Top Secret letter disclosing that it was considering implementation of a series of research studies aimed at developing a "world-wide cover communication satellite system."

In the language of the aerospace industry, such a letter is called an RFP—a Request for Proposal.

TRW responded that it would submit a proposal in an effort to win a CIA study contract on the project.

The CIA's RFP read:

The principal requirements for the satellite network are as follows:

- * Provide maximum protection of the user against signal detection and direction finding leading to determination of user location.
- * Minimize dependence upon overseas ground stations.
- * Provide multiple simultaneous access capability to users employing different types of traffic, data rates, modulation techniques and radiated power levels.
- * Provide communications on demand with essentially no waiting time regardless of type and location of user.
- * Provide protection against traffic analysis, which could imply numbers, types, purpose and location of users.

The CIA said it wanted a design that could not only provide a clandestine avenue of communication with agents, but also relay information from robot transmitters that were to be dropped secretly on foreign soil to transmit intelligence information by remote control—seismic measurements, for example, disclosing the incidence, time and magnitude of nuclear-weapons tests. There was also a third desired capability—the capacity to serve in an emergency as a conduit for communications between Washington and American embassies around the world.

The intelligence agency dictated that the system had to be able to handle up to about one hundred agents at one time, a daily volume of some fifty messages to Langley and about twenty messages sent from Langley to agents. Some of the transmissions would be as long as two hundred words, but most would be in short bursts, the equivalent of about ten words.

There was to be one fundamental requirement for the system, the

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CIA told TRW: the chance of transmissions' being detected was to be less than 1 percent.

The CIA letter stated:

This study effort is classified TOP SECRET and has been assigned a code-word designator, "PYRAMIDER."

All contractor personnel working on this study effort must have a current TOP SECRET clearance and must be approved by Headquarters prior to being briefed on PYRAMIDER.

Contractor personnel proposed for clearance access to this study must qualify by holding a currently valid BYEMAN security access approval.

While this study effort will be conducted within the contractor facilities as TOP SECRET, and while only those personnel holding active BYEMAN access approvals are eligible for consideration, the effort is not a BYEMAN study, but is to be conducted in all aspects of document control, physical security standards, communications within Headquarters, and the like, as if it were BYEMAN.

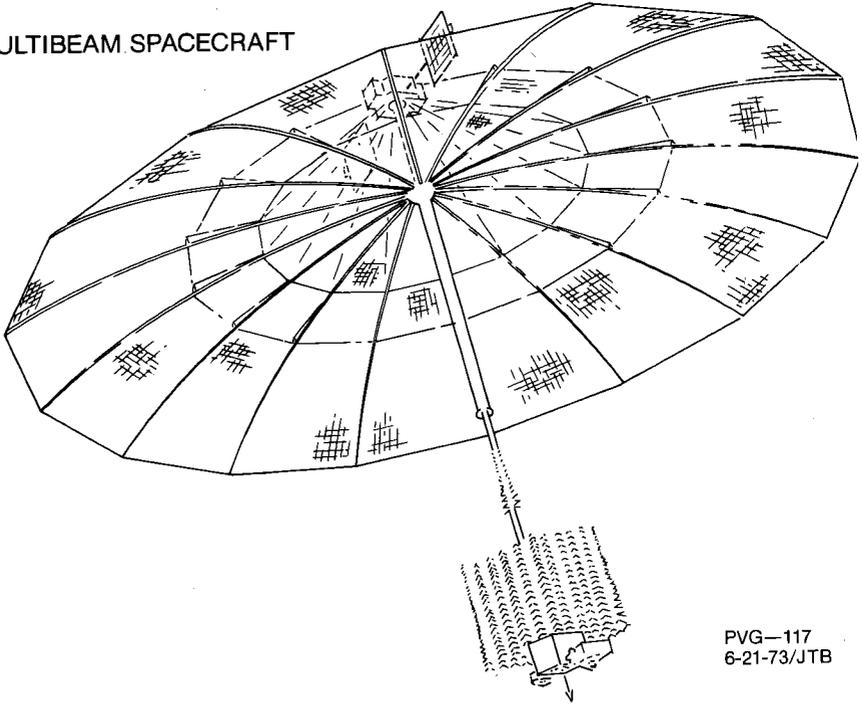
Security officers will assure documents within the contractor facility are stamped TOP SECRET/PYRAMIDER only, and are not entered into the BYEMAN system.

The highly sensitive nature of this effort cannot be emphasized enough. Personnel submitted for access approval will be submitted via cable message which shall fully outline their need-to-know. No Form 2018 will be submitted to Headquarters. A list of those persons approved for access to PYRAMIDER shall be maintained by Headquarters Security Staff. Cable messages shall be sent via secure TWX and shall be slugged PYRAMIDER on the second line. PYRAMIDER shall enjoy limited distribution within Project Headquarters.

In February, 1973, a Top Secret TWX arrived at the Black Vault from Langley notifying the company that it had been selected to develop a design for the Pyramider project. A few weeks later a formal contract arrived from the CIA. It was signed in a broad scrawl with the name James Cranbrook, a pseudonym assigned to a CIA official to give him anonymity. The initially authorized spending for the study was only \$50,000. But as was common in the aerospace industry, TRW would invest considerably more than this in the study in the belief that it would lead to a CIA production contract worth hundreds of millions of dollars.

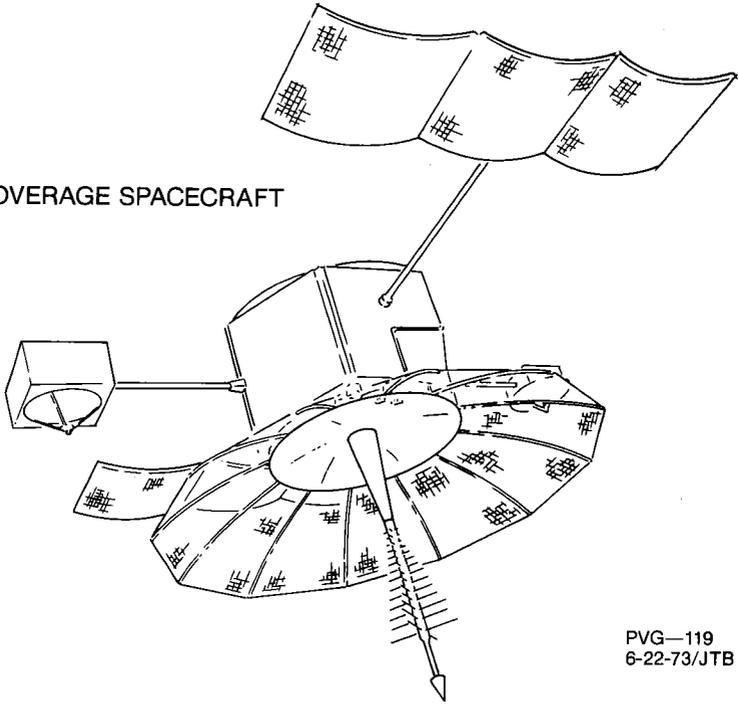
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MULTIBEAM SPACECRAFT



PVG-117
6-21-73/JTB

EARTH COVERAGE SPACECRAFT



PVG-119
6-22-73/JTB

Sketches of the proposed TOP SECRET Pyramider satellites.

A specially cleared team of forty engineers and technical specialists, working in a sealed area in M-4, was assigned to design the global covert-communications network in the spring of 1973, a year before Christopher Boyce became an employee of TRW. In July, the team submitted its plan for the system.

It concluded that the CIA's ambitions for the espionage switchboard were realistic: such a system, it said, could be provided between Langley and its far-flung agents at a price of between \$355 million and \$442 million, depending on technical variables to be decided later as development proceeded.

The plan envisaged launching three satellites 22,000 miles from the earth in so-called "stationary" orbits, in which their movement through space would be synchronized to the earth's own rotational speed and, thus, seem to remain over the same point on earth. One satellite, positioned over the Indian Ocean, and another, over the Pacific, were to be always within broadcast range of Langley; the third was to be positioned on the other side of the globe above Southeast Asia. The messages it handled would be relayed by one of the other two satellites or by an earth station on the Pacific island of Guam.

The report emphasized that advanced radio-frequency-interception equipment in aircraft and on the ground could pose a threat to the CIA's goal of providing absolute secrecy for the agents during communications. But TRW outlined a technical strategy—such as constantly shifting the frequency on which messages were broadcast, a technique called "frequency-hopping"—that, it said, would provide large "safe areas" within cities where signals could be hidden among random urban radio transmissions. Such methods, it said, would also "reduce aircraft intercept radius in remote areas to twenty nautical miles."

TRW designed a satellite that, more than anything else, looked like an umbrella for a giant man in space. Its most striking component was a one-hundred-foot-wide concave antenna; extending from the center of this "dish," like the staff of an umbrella, was a long boom, and at the end of the boom, where the umbrella handle might be fitted, was attached a large package of electronic equipment. The satellite was to be launched from Cape Canaveral folded in the nose of a rocket booster; once in space, the antenna was to unfurl like a slender umbrella suddenly popped open in the rain.

By the time TRW had completed the design study, it had billed the CIA for \$66,000.

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It submitted its bid and waited for a decision to proceed.

But in the fall of 1973, the CIA made a decision: it realized it would not get the money from Congress for the next fiscal year to build Pyramider and so it shelved the project at least temporarily.

However, it continued exploring the use of similar covert-communications technology with other companies and in projects with other code names. Eventually, with certain variations, the CIA launched an alternative program to provide instantaneous communication with spies around the world using satellites similar to Pyramider.

After the Pyramider design was completed, a copy of TRW's final report, containing more than thirty volumes of documents, was locked in a safe at TRW. According to the gossip in M-4, Pyramider was a dead project.

Not long after Chris submitted his resignation, the Pyramider documents were removed from the safe where they had been held, and they were left out in the open on a file cabinet in the Black Vault.

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The clerk at the Hacienda Airport Hotel looked across the desk at the two young men who were registering to spend the night together on the evening of December 7, 1976, and tried to retain his poise.

The Hacienda was a popular trysting place for stewardesses and pilots during airline layovers in Los Angeles, but it didn't attract many homosexuals. Chris said they needed the room only for the night and would depart the following morning, December 8. The clerk signed them in and watched from behind as the short, curly-haired youth and the tall, thin one walked away.

They had driven the Lees' Cadillac to the motel and carried a six-inch-thick stack of papers to their room—the Pyramider papers.

It was by far their biggest night of photography—13 rolls of film, more than 450 exposures. (If either remembered that it was the twenty-fifth anniversary of the Japanese attack on Pearl Harbor, he did not mention it.)

Earlier that day, Chris had stuffed the papers into a satchel and left the plant at four thirty, attempting to lose himself in the throng of homebound employees. Chris spotted a guard looking at him; and when he didn't look away and seemed ready to say something, Chris braced himself to run. But then the guard turned his attention to someone else, and Chris put the satchel in the back of his Volkswagen.

The following day, he went to work earlier than usual and placed the

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her home, Chris realized that the memory of the evening was all he had left now to hold on to—except Mr. Pips. And he vowed to fly the socks off Pips until they came to get him.

. . .

On January 12, five days before Daulton crossed the bridge and six days after his arrest, the Black Vault at TRW was shut down. That morning, two FBI agents called on Regis J. Carr, TRW's director of security for Special Programs, and said that they wanted to discuss Project Pyramider; the arrest in Mexico of a man named Andrew Daulton Lee; and a friend of Lee's, Christopher John Boyce, a former TRW employee.

Carr was stunned. A former FBI agent and a respected professional in the small world of special-projects security, he told the agents that Christopher Boyce had had "access to Top Secret intelligence information which would cause very grave damage to the United States if it were ever published or fell into the hands of a foreign country." He asked the agents if they thought there was any chance that Boyce might have passed information from the vault to the Russians, and they said that, unfortunately, they believed he had.

Then Carr gave the agents a detailed assessment of the potential damage to the United States. As an agent jotted down his comments, he said, "Christopher Boyce had access to the entire inner workings of the intelligence community, with daily access to intelligence communications, documents and hardware. He's had this privilege for two years. He's operated as a courier within the plant and outside, operated a secure voice communication system and an encrypted TWX network on line with government contractors and overseas stations, and he talked to the CIA directly by TWX." As the investigation proceeded over the next few days, the realization of the enormity of the loss became even more apparent; copies of the pictures of the Pyramider documents furnished to the FBI by the Mexican Government were shown to Carr. The documents, Carr said, "were classified Top Secret, and the disclosure of any of the information could have very grave and irreparable damage to the national defense."

An agent asked where the Pyramider documents had been stored, and Carr said they were locked in a safe in the communications vault, where Boyce normally wouldn't have access to them. Another TRW security officer was dispatched to the vault to retrieve them, and he

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found the Pyramider papers not locked up, but lying on top of a cabinet. Gloomily, TRW officials told the agents that Chris had had not only access to the Pyramider documents, but intimate knowledge about two very secret satellite programs, Rhyolite and Argus, as well as NSA encryption ciphers that the Soviets could use to decipher CIA messages. Carr said that Boyce had had access to the High Bay Area in M-4, where two satellites were in storage, and could have photographed these satellites, as well as new antennas that were being prepared for satellite launching. He urged the agents to find out if Boyce had taken photographs of this hardware, whether he had transmitted any data to the Russians "about lasers" and whether he had given the Russians copies of TWX messages from the vault or the list of "slugs" that were used to identify stations on the CIA's Secret Communication Network.

When the FBI agents first arrived at TRW, it was six days after the CIA had learned in Mexico City of Daulton's arrest with the Pyramider papers. But Carr would testify later that he had not been told of the damaging security breach in the vault he supervised until the FBI brought him the news. Indeed, his first reaction after receiving the news was to tell the CIA. Instinctively, he started to use the encrypted voice link in the Black Vault to reach Pilot, but then checked himself. He feared that it might have been bugged by the KGB or that other TRW employees might have been compromised by Soviet spies. Still, he felt he had to get the word as fast as possible to Langley, and he elected to call CIA Headquarters over a conventional, nonsecure line. He informed the agency what the FBI agents had just told him, using the initial "P" to describe the missing Pyramider papers.

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Two days later, on January 14, two other FBI agents paid a call at the Redondo Beach apartment that Aaron Johnson shared with Beverly Zyser and inquired about their friend Andrew Daulton Lee. The couple figured the agents were investigating Daulton's drug business, although they couldn't understand the agents' intense interest in Daulton's relationship with Chris Boyce. Johnson told the agents he knew Daulton traveled often to Mexico but didn't know why. He said Daulton was "into heroin," a "hard core" criminal who made his living through pushing drugs, and always had lots of cash which he flashed around. He mentioned the scar-faced man he'd seen at Daulton's

—was the best they had. Furthermore, he said he believed it was true. He was convinced, he told Daulton, that Chris was a CIA agent.

On the afternoon of April 25, 1977, George Chelius and Bill Dougherty decided to make a final attempt to make a deal with the prosecution.

They agreed they'd probably not scored enough points for the defense to undermine the strong prosecution case anchored in Chris's own admission of guilt. They still maintained from a constitutional standpoint that Chris's confession had not been voluntary according to the Supreme Court's *Miranda* decision, and therefore shouldn't be admissible as evidence; but this was now a moot point. It appeared that Chris was going to be convicted, and his only hope now was a deal.

They met with Stilz and Levine in the offices of the U.S. Attorney on an upper floor of the same building where the trial was being held. The defense lawyers proposed that if the prosecution agreed to a maximum sentence of ten years, Chris would plead guilty, testify against Daulton and tell everything he knew about their espionage operation to the CIA. Otherwise, they said, Chris would take the stand the following day.

"Ten years!" Stilz said sardonically.

"We already turned that down," Levine said.

Things were different now, the defense lawyers suggested. Unless there was a deal, they hinted, Chris might say embarrassing things from the witness stand the next day.

"No deal," Levine said. "We told you we wouldn't take that deal two months ago!"

"You weren't going to lose a ground station in Australia before," one of the defense lawyers snapped.

"Get the fuck out of here," Levine said, and that ended the final round of plea-bargaining negotiations for Chris.

While this scene was being acted out by the lawyers at the courthouse, Chris was being transported back to the Los Angeles County Jail.

The trial had confirmed what Chris had expected from the moment

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he saw the carloads of men swarm around him at the turkey ranch—indeed, what he had expected from the moment he got the call from Daulton on the night of his first contact with the KGB. Chris *knew* that he was going to be convicted—and he had decided to make a final stab at the system he hated now more than ever. He had decided to plot his own murder.

Many times during the past few weeks, in the solitude of the tiny isolation cell, he had told himself suicide was the only reasonable ending to what had begun two years before. But if he was going to commit suicide, shouldn't he give his death some meaning? Why not stick it to them where it would hurt when he did?

It really didn't matter, he mused, who got the blame for his murder. Some people would blame the CIA, others the KGB. To Chris, they were one and the same. Most people, he thought, would probably blame the CIA. He was going to kill himself and make it appear that he had been murdered by someone who didn't want him on the witness stand the next day.

The basic plan had taken shape in his mind over the past week: He would hang himself with the electric cord from the radio in his cell. But before he did, he would arrange the cell like a stage set bristling with clues to murder—a murder committed by someone attempting to make his death appear like suicide. His resources to carry out the plot were slim, he thought, but they would be enough.

The first thing that occurred to him was to leave an ample amount of toothpaste in his mouth when he placed his makeshift noose around his neck—who would commit suicide with a mouthful of toothpaste? He would throw his toothbrush under the bed to make it appear that it had been flung there when Chris was overpowered while brushing his teeth; he would leave notes in the pockets of his pants, written to a friend and to Bill Dougherty, saying he was extremely optimistic about the way the trial was going and expressing hopes for the future.

Methodically, Chris began arranging the set in the small cell: He pulled out the edge of the blanket on his bed so it looked as if it had been yanked out during a struggle; he ripped open a package of cigarettes and stomped on it to make it appear as if it had been smashed during a fight; he laid out the toothpaste and toothbrush like a craftsman neatly arranging his tools before starting a job; and then he wrote the letter to his friend on fancy tissue-paper stationery and got ready to carry out the simulated murder sometime after midnight.

Midnight approached and passed. In the dim light of the jail, Chris stared at the materials he had assembled to stage his murder and cursed himself for procrastinating. Was it the old dichotomy that had haunted him for as long as he could remember?

He tried to resist the doubts that were keeping him from his final step of preparation—pulling the wire from the radio and tying his noose. But he couldn't fend off the doubts; they taunted him, and his mind groped for alternatives: perhaps, he thought, there was still a chance of acquittal; if he was convicted, wasn't there a chance he could escape?

Chris thought at length about a conversation he had had with Victor Marchetti. He had sensed in Marchetti the same disgust he felt for the dirty tricks of the agency; perhaps, he had told Marchetti, the way to get his revenge on the agency was to say in public something the CIA spooks did not want to hear.

Chris didn't go to sleep that night. As the implements of his suicide/murder plot lay beside him, he read and reread the statement he had made to the FBI on the night of his arrest, memorizing it so that he would not trip himself with inconsistencies. Then he prepared a list of questions that he would give Bill Dougherty to ask him the next day.

From time to time as he wrote the questions and rehearsed his answers, Chris's thoughts went back to suicide and he scolded himself for lacking the final measure of courage to implement his plan. But ultimately this sense of guilt was overpowered by a different kind of guilt: he realized he could not shake off the belief that he felt planted deep somewhere in him, that it was a mortal sin to commit suicide—and to die with a mortal sin on his soul meant burning in the eternal fires of hell.

Besides, he admitted to himself, he wanted to live.

But, it was more than that: he had decided he could hurt the evil he hated more by taking the stand than by killing himself.

Since his years at St. John Fisher, Chris had loved public speaking and debate. He had never minded taking a risk. Now he had a chance to speak for his life.

After his night without sleep, Chris took the stand shortly after 9 A.M. on April 26, 1977, and was sworn in.

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Under gentle questioning by Dougherty, Chris began by sketching the details of his life until the middle of 1974: his youth in Palos Verdes; his attendance at Harbor College, Loyola and Cal Poly. In July, 1974, he said, his father had helped him obtain a job at TRW; he traced the first few months on the job, his introduction to "black projects" and his assignment to the Black Vault.

And then Chris got ready to give the story that he had sketched out the night before of how—and why—he had become a Russian spy.

"Do you know Andrew Daulton Lee?" Dougherty asked.

"Yes."

"How long have you known Andrew Daulton Lee?"

"Since I was a child. A long time."

Dougherty asked Chris if he could recall a conversation he had had with Daulton shortly after he took the job in the Black Vault, and Chris said he could.

"I was at a party over at his house. Not too many people—a fairly small party." After everyone else had left, "we were sitting down in the back of the house and we were drinking, smoking pot, and he began to talk about . . . He was on—he had violated his probation—and . . ."

"Well, were you discussing politics before he got into this?"

"We were discussing problems with the government in general and his particular problems."

"Were you discussing any major problems of national interest?"

"We were discussing Watergate and Richard Nixon, and he had read a book and he was talking about how the Central Intelligence Agency had killed President Kennedy, and that I didn't believe. You know, it was just up for discussion, and we talked about Chile, and he said he was leaving the country to escape arrest. He didn't want to go back to prison, and he said that his probation officers were really giving him a raw deal, that they were really giving him the shaft."

The conversation turned back to Chile, he continued. "A democratic government had been overthrown," he said, and they agreed the CIA had probably been behind it.

"He said that the government, as he knew it, was really giving him the shaft, and I said, 'If you think that's bad, you should hear what the Central Intelligence Agency is doing to the Australians.' And he asked me what, and I told him that—"

Stilz lunged from his seat.

"Your Honor, at this point, I'm going to object. That conversation is irrelevant."

"Sustained."

Chris continued to try to make a point about Australia, but Stilz battled to keep him off the subject. Slowly, however, in his interrupted answers and Stilz' hurried objections, it was becoming apparent to spectators in the courtroom that Chris knew something sinister about America's dealings with Australia.

What wasn't yet apparent was that Chris was establishing the foundation for the defense he hoped would keep him out of prison: he was about to charge that he had been an unwilling spy, that he had been blackmailed by Daulton into being a spy.

Chris continued his testimony under Dougherty's probing. Shortly after the initial discussion with Daulton, he said, the subject of Australia had come up again. Once again, Stilz recognized possible disaster ahead and started to rise. But he was too late. Chris said:

"And I informed him that part of my daily duties . . . I worked in a communication room . . . part of my daily duties were to continue a deception against the Australians."

There was a stir in the courtroom. The television-network artists and reporters seated at the press table looked at each other as if to say, What did he mean by *that*?

"Your Honor," Stilz said urgently, "at this point I'm going to object. Irrelevant."

"Sustained."

There was a banging noise in the back of the courtroom, and heads turned instinctively to see who it was. It was General Hershey Bar in full regalia pushing open the doors of the courtroom and reclaiming his seat after visiting the rest room. The tension of Chris's testimony was broken momentarily.

"All right," Dougherty continued. "Did you tell him you wanted to do something about this information?"

"I said I would like to make it known, but that I didn't want to get in trouble for it. I didn't want anything to come back to me. And he said his father knew many influential people. . . ."

"At this point did you have any intent or desire to hurt the United States in any way?"

"No, sir, not at all."

... lied that he had agreed to write a letter documenting the
 ... grievances about Australia and that Daulton had volun-
 ... ve his father make it public through unnamed influential
 ... by exposing official shenanigans as Ellsberg and Russo
 ... subsequently, Chris claimed, Daulton informed him that he
 ... used the information so that it could be made public, as he'd
 ... but that instead, he had sold Chris's letter to the Russians in
 ... and demanded more information from the Black Vault
 ... threat of exposing Chris. If he didn't give him more secrets,
 ... had threatened to blackmail his father, he said. Chris said that
 ... reed to go along with Daulton's demands—but only because
 ... treats—and he had responded by giving him worthless, out-
 ... formation.

... Dougherty's probing. "Never—never planned for this to happen," he asserted.
 ... he said, the subject of you ever willfully transmit information relating to the national
 ... recognized possible disclosure to anybody at all with the belief that it would be used by—to
 ... te. Chris said: "Intelligence by a foreign nation?" Dougherty asked.

... duties . . . I worked, sir," Chris lied. He spoke surely, decisively. There was
 ... duties were to contribute, boyish aura to his testimony that gave it verisimilitude.
 ... es, he seemed on the verge of tears. He seemed to some in
 ... courtroom a child trapped by forces he could not comprehend or
 ... each other as if to obliterate.

... and did you ever willfully or knowingly act as an agent for a
 ... cogn government?"

... Not willfully, but I knew that's what I had become."
 ... he interrogation had lasted more than two hours, and it left the
 ... courtroom in shocked silence.

... Stiltz' cross-examination was brutal. He started by getting Chris re-
 ... atedly to admit that he knew he was transmitting *classified* informa-
 ... on to the Russians in violation of the law and secrecy pledges he had
 ... signed. Stiltz showed him signed copies of his project-briefing security
 ... pledges from the CIA archives.

... "You admitted to the FBI that you received fifteen thousand dol-
 ... ars?"

... "Yes, sir."
 ... "And did he [Lee] coerce and pressure you into taking this money,
 ... Mr. Boyce?"

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All personnel history statements of employees thirty years of age and under will be required to list five names of associates of peer groups for interview as to possible suitability.

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In October, 1978, in a speech at Cape Canaveral, President Jimmy Carter lifted the official veil of secrecy that had cloaked American espionage operations in space for twenty years: The United States owned up to using spy satellites. Carter declared:

"Photoreconnaissance satellites have become an important stabilizing factor in world affairs in the monitoring of arms agreements. They make an immense contribution to the security of all nations."

A few weeks later, after the CIA had failed to anticipate a popular uprising in Iran against the Shah, the President sent a critical memo to CIA Director Turner. Alluding to the setback in Iran and other recent intelligence failures, Carter took the CIA to task: Perhaps, he suggested, the CIA had become too dependent upon "technical" means of intelligence collection—specifically, satellites. Perhaps, he added, it had forgotten the value of old-fashioned human spies.

. . .

There was never any public admission from the CIA about its grievous loss of data concerning Projects Rhyolite and Argus and the other secrets that had flowed out of the Black Vault for almost two years.

On December 8, 1978, William Clements, who had served as Deputy Secretary of Defense during part of the time Chris worked in the vault and was later elected governor of Texas, in a speech to the Philosophical Society of Texas that generally denounced what he saw as the sorry state of American military preparedness, said:

"Our intelligence community is in disarray. A major satellite intelligence system, developed and deployed at a cost of billions of dollars over the past decade, without Soviet knowledge, has been compromised by intelligence procedures as porous as Swiss cheese."

. . .

A number of months after the conviction of Boyce and Lee, the CIA began to notice a difference in some of the telemetry signals the Rhyolite system was collecting from the test flights of Soviet ballistic missiles: they were in code.

For at least four years, the American satellites had secretly intercepted test data from the launches and transmitted the information to the Australian bases. The intercepted telemetry signals provided reports on velocity, heading, trajectory and other aspects of the test intended for Soviet researchers who used the data to diagnose the performance of their new hardware. Because of the eavesdropping by the Rhyolite birds, American technical experts also could analyze the signals and follow from afar the evolution of new Soviet weapons, including tests of advanced multiple warheads, atmospheric-reentry systems and radar-deceiving "penetration aids." Along with on-the-ground and aircraft monitoring of Soviet telemetry, the eavesdropping enabled the CIA to develop a substantial body of information about the evolving capabilities of Russian weapons and give American negotiators at SALT conferences advance knowledge about the capabilities of the weapons. It was as if Americans, playing a game of poker with the Russians, were standing behind them, looking at their hand.

When the Russians began encoding the telemetry reports, the United States lost part of its ability to look over their shoulders. Exactly what role the information provided by the two young Americans played in the Soviets' decision is not known. Only the Soviet officials who made the decision to begin encoding the signals could attest to the importance of the information. But whatever the reason, it was a major setback for the United States because it closed a window on Soviet technology at a time of rapid improvements in Russian missile hardware; and further because when such satellites were becoming increasingly important to police international arms-control agreements, U.S. listening posts in Iran would soon be closed by political turmoil there.

It is also impossible to assess fully other aspects of the damage done to the United States by the two friends' espionage scheme. Ironically, only the Soviet Union knows in full all of the secrets that flowed out of the Black Vault. Chris may have been drunk some of the time he selected the secrets he gave Daulton. And Daulton did not remember all his merchandise because it was only that—goods to be sold for a price.

At the least, the Russians obtained an unprecedented look at the day-to-day operations of American espionage satellites, particularly Rhyolite. They became privy to the function of the Australian bases and the American deceptions against them. And they learned technical details about U.S. spy satellites at a time when the two countries were

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negotiating agreements to control strategic arms with the intent to use such satellites to verify compliance with them—and when each country was urgently preparing weapons, such as TRW's laser gun, to disable the other's spy satellites.

The dual loss of the data from the Black Vault and the Iranian monitoring stations came at a particularly unfortunate time for the CIA. In the spring of 1979, the Carter Administration negotiated a new SALT agreement with the Soviet Union in which the world's two superpowers agreed to throttle back development of new nuclear missiles. The issue of whether the United States could verify Soviet compliance with the agreement became the subject of a major national debate.

The Administration (which didn't publicly reveal the security breach at TRW) conceded that the loss of the Iranian listening posts was serious, but said it was confident that the United States would be able through other means to verify Soviet compliance with the agreement, hinting that satellites could take over much of the work of the Iranian stations. To help fill the gap, the CIA accelerated work on low- and high-altitude eavesdropping satellites more advanced than the four Rhyolite satellites which were then in orbit. As it did, it appeared that Moscow was in an enviable position to anticipate the United States' next move in the high-stakes game of technological one-upmanship that the superpowers play.

Not only did the Soviets have intimate knowledge of the Rhyolite system; they had blueprints and voluminous other data regarding Argus, a system that was to have an antenna almost twice as large as the one on Rhyolite; moreover, when the Soviet Union bought the Project 20,030 study from Andrew Daulton Lee, it had become privy to what some of the best brains in the American aerospace industry thought would be possible technologically in the 1980s to intercept Soviet telemetry. Certainly, the CIA's knowledge that the KGB possessed these data would be likely to persuade the agency not to build a new system exactly as it was laid out in the study.

But there are certain things in this spectrum of technology that cannot be changed if a country wants to use its technical capabilities to the fullest, and in the Project 20,030 study it appears that the Russians bought at least a partial preview of how good American abilities to monitor their missile tests would be far into the future.

The Russians had also obtained copies of numerous classified cables, including the report of a CIA submarine's secret mission to monitor

Soviet missile tests over the Arctic; they had obtained reports on the surveillance of China and other intelligence operations that cannot be disclosed here; and perhaps most important, they had received the classified TWX message listing the capabilities of many of the American satellite systems used to monitor the Soviet Union and other countries from space.

But what this information really meant to the Russians, only they know. Some capabilities of the American reconnaissance satellites had previously become known to the Soviet Union across the negotiating table at the SALT conferences. Certainly, some of the information they obtained from the two Americans about U.S. satellites was available by simple deduction through analysis of orbital data collected by their own tracking stations or supplied routinely by the United States to the United Nations.

The Russians never got the transmission frequencies they needed to use with the ciphers from the Black Vault to eavesdrop on CIA communications. Chris had seen to that. Prosecutors Stilz and Levine would argue that possession of the ciphers alone would allow the Russians to read the CIA's secret mail; again, only the Russians know the importance of the tables of ciphers from the vault they bought from Lee.

Some mysteries about the affair remain.

Daulton frequently and openly visited the Soviet Embassy for more than a year and a half, and it is astonishing that the CIA did not discover his visits before January 6, 1977, if in fact it did not.

The Soviet Embassy in Mexico City is, for the CIA, one of the most closely watched foreign embassies in the world. It had been a principal target of American intelligence for decades before Daulton began making his visits.

Long before Daulton sat down for vodka and caviar with Vasily Ivanovich Okana, Lee Harvey Oswald demonstrated how convenient a destination it was for a disaffected American seeking contact with the Russians.

Phone taps and electronic surveillance techniques of the newest designs are used to monitor the embassy. Its KGB personnel are kept under surveillance by their counterparts in the CIA, some of whom are assigned to the U.S. Embassy with specific assignments to compio