

CHAPTER 1

“Science Nabs Sorority Sneak”

Her eyelids drooped. “Oh, I’m so tired,” she said tremulously, “so tired of it all, of myself, of lying and thinking up lies, and of not knowing what is a lie and what is the truth. I wish I—”

She put her hands up to Spade’s cheeks, put her open mouth hard against his mouth, her body flat against his body.

—DASHIELL HAMMETT, *THE MALTESE FALCON*, 1929

THE CASE HAD ALL THE SIGNS OF AN INSIDE JOB. ONE OF the ninety young women in College Hall was a sneak thief. For several months, someone had been filching personal possessions from the rooms of her dorm sisters: silk underthings, registered letters, fancy jewelry, cash. It was the springtime of the Jazz Age in 1921, and young women were returning to the boardinghouse on the campus at Berkeley to find their evening gowns spread out on their beds, as if someone had been sizing them up. A sophomore from Bakersfield had been robbed of \$45 she had hidden inside a textbook; a freshman from Lodi lost money and jewelry valued at \$100; and Margaret Taylor, a freshman from San Diego, could not find her diamond ring worth \$400—though she wondered whether she had simply misplaced it.

Unable to wring a confession from any of her boarders, the house-mother turned to the Berkeley police department, famous for introducing modern scientific techniques into crime-fighting. But Jack Fisher, an old-time cop on the force, didn’t have much to go on. He learned that on March 26, Ruth Benedict had put \$65 in her purse before going down to dinner at six; when she returned at six-thirty, the money was gone. One boarder,

Alison Holt, had been seen watching Benedict hide her purse, and had not come down to dinner immediately. This made her Fisher's prime suspect, especially as she was "one of these big baby eyed types [who] cannot remember what took place on any given date and answers all questions with the big innocent baby stare." The other girls thought her "queer."

Also, at that same meal, another young woman, Helen Graham, had carried a plate up to a Miss Arden, sick in her room. Officer Fisher was plied with various rumors about Miss Graham, a tall, well-proportioned woman with deep-set eyes, dramatic eyebrows, and an intense manner. Her roommate told him Miss Graham spent money out of proportion to her modest Kansas background; also, she wore a diamond ring and a pendant with big stones. She was a bit older than the other young women and had trained as a nurse. "She is of the highly nervous type," Fisher wrote, "and has been suspected of being a hop head." She also had more experience when it came to men, and her dorm sisters seemed to resent her for it.

Then there was Muriel Hills, who had been seen in the vicinity of another theft: a "very nervous type, the muscles of the eyes seem to be affected, the eyes moving all the time, and she . . . has to hold her head sideways to see who she is talking to."

So far Fisher had a baby-faced queer girl, a high-strung bad girl, and a jittery nervous girl, plus other suspects. He did not see, amid these female intrigues, how he would ever solve the case.

Then the housemother began to worry that repeated visits by the police would give the house a bad reputation. College Hall was the sole sanctioned residence at the University of California, filled with respectable young women of eighteen and nineteen from good families. The housemother asked that the investigation be wound down.

So Fisher called in his colleague John Augustus Larson, the nation's first and only doctoral cop: a twenty-nine-year-old rookie who had earned a Ph.D. in physiology from the University of California. Larson was a solid man of medium height, who led with his forehead, his blond hair pasted firmly to one side. A man with something to prove. He was currently working the four-to-twelve downtown beat like any other rookie, but he was not much of a cop in other respects. For one thing, he was almost blind in his right eye and was the worst shot in the department. For another, he was just learning to drive and had recently wrecked two squad cars in a single

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day. Meanwhile, he was still toiling in a university lab looking to bring new scientific methods to police work.

Only a few weeks back, Larson had read an article entitled “Physiological Possibilities of the Deception Test,” by the lawyer-psychologist William Moulton Marston. In experiments conducted at Hugo Münsterberg’s famous emotion laboratory at Harvard, Marston had discovered that he could determine which of his fellow students were spinning tall tales and which were giving an honest account. All he had to do was track the rise in their blood pressure as they reached the climax of their story. Larson wondered: might this method be applied to the dirty business of police interrogation?

As a trained physiologist, however, Larson saw several ways to improve Marston’s technique. He began by reversing Marston’s procedure. Whereas Marston had taken intermittent blood pressure readings while his subjects told their tall tales, Larson decided to take continuous readings while his subjects answered specific questions. With the help of a lab technician, he assembled an apparatus that registered a subject’s systolic blood pressure and breathing depth, and recorded these values permanently on a roll of smoke-blackened paper. Though the machine would record the relative values of a pulse-pressure amalgam, and not the absolute value of the blood pressure, as Marston’s cuff method did, its great advantage was that the automated device minimized the examiner’s judgment in taking the readings, thereby fulfilling one criterion of the scientific method, which was to “eliminate all personal factors wherever possible.” This was particularly important in cases where the examiner might be led astray by his own feelings about a test.

In another sense, however, Larson’s procedure was hardly new. For more than half a century physiologists had used this sort of automatic recording device to track bodily processes beneath the skin. Some had even tried to correlate these interior reactions with subjective feelings. As early as 1858, the French physiologist Étienne-Jules Marey had built a device that simultaneously recorded changes in blood pressure, respiration, and pulse rates while his subjects experienced nausea, sharp noises, and “stress.” By the late nineteenth century, the American psychologist William James had come to *define* emotion as bodily changes that occurred in response to the cognition of an exciting stimulus. Larson was simply proposing to read the body’s emotional script for signs of deception.

The resulting device, which Larson dubbed the “cardio-pneumo-psychograph,” was a bulky Rube Goldberg contraption, and this is no idle comparison. Reuben Lucius Goldberg, class of 1904, the Berkeley engineering school’s most famous graduate, had recently achieved renown for his cartoons skewering the American credo that all of life’s problems had a mechanical solution. And what was Larson’s “cardio-pneumo-psychograph” if not a mechanical solution to one of life’s oldest mysteries: What is going on inside the head of another person?

At the same time, in keeping with police procedures, Larson swapped Marston’s analysis of invented stories in favor of a “controlled” comparison of answers to yes-no questions, some irrelevant to the matter under investigation, others of an accusatory nature. One of the great challenges of lie detection was to match the human ingenuity for deceit. Dissembling comes in many guises: Machiavellian lies are disseminated by the strong; defensive lies are woven by the weak; and white lies keep the social machinery running smoothly. As the essayist Michel de Montaigne once observed, “If a lie, like truth, had only one face, we could be on better terms, for certainty should then be the reverse of what the liar said. But the reverse side of the truth has a hundred thousand shapes and no defined limits.” By narrowing the range of possible deception postulated by Montaigne, Larson could calibrate the device for each person. He also insisted that all the questions be identical for each suspect, and that all be posed in a monotone.

Finally, instead of testing his technique against Marston’s role-playing games, Larson found an experimental setup more in tune with the world of practiced deceivers. In the past decade psychologists had largely given up trying to derive the universal qualities of mind by introspecting within their own roomy consciousness, and had instead begun to deduce human behavior by testing the outward responses of ordinary individuals. As the most convenient source of ordinary individuals, university undergraduates had become the preferred subjects of laboratory psychology; they also had the advantage of being relatively homogeneous, healthy, able to follow simple directions, and unlikely to complain. Larson found a way to preserve these advantages and still investigate a serious matter. Larson set out to investigate crime in Berkeley’s sororities. In this real-life test the examiner

could not know the identity of the guilty party in advance. He might also never know whether he had truly solved the mystery.

For just this reason, Larson planned his protocol with care. He readily secured permission from the housemother and the young women to run the test; after all, he noted, anyone who refused would have appeared guilty. He devised his list of yes-no questions: first a set of innocuous questions to define the student's "normal" bodily response, to be followed by a set of questions pertinent to the crime. Then he invited five young women—two victims and three suspects—to the physiology lab on the Berkeley campus for "a preliminary or sparring examination." Of these, four produced records of sufficient ambiguity to justify retesting: big-eyed Holt; worldly Graham; sickly Arden; and even Ethel McCutcheon, one of the young women who claimed to have been robbed. Larson attributed the poor discrimination in his results to the fact that he had peppered the subjects with questions too rapidly; in the future he would allow more time for tension to build. At last, on April 19, 1921, he turned to the main event: a full-scale test on the same young women, plus nine presumably innocent women from the house, who would serve as his controls.

Larson began with Margaret Taylor, the freshman who had lost the \$400 diamond ring. Not that he doubted her word; she had been one of his and Fisher's "confidential informants" inside the dorm. But a policeman must always be skeptical, as many a complaint was faked and many a victim embroidered her tale of woe.

While the other young women waited in the antechamber, he invited Margaret Taylor into his lab and seated her alongside the elaborate machine. She was a blue-eyed, fair-haired specimen of the California southland, an eighteen-year-old native of San Diego with honest-to-goodness golden ringlets cascading to her shoulders. Larson wrapped one of her bare biceps in a cuff to calibrate her blood pressure, then strapped the automatic blood-pressure gauge to her other bare arm and pumped its cuff until it gripped her firmly. He wound a rubber hose with its leather brazier tight around her chest to measure the depth of her breathing, then told her to hold her body perfectly still, lest the least muscular movement be mistaken for a guilty reaction. Then he turned the instruments on. The drums began to revolve, the black recording paper turned, and the long rubber hoses swelled and

subsided to the rhythm of her body's organs, while a pair of long sharp needles scratched out her body's message against the black recording paper, as if tracing a silhouette of her thoughts. After a short preamble, he began.

1. Do you like college?
2. Are you interested in this test?
3. How much is 30×40 ?
4. Are you frightened?
5. Will you graduate this year?
6. Do you dance?
7. Are you interested in math?
8. Did you steal the money?
9. The test shows you stole it. Did you spend it?
10. Do you know where the stolen money is?
11. Did you take the money while the rest were at dinner?
12. Did you take Miss Taylor's ring?
13. Do you know who took Miss B[enedict]'s money?
14. Do you know who took Miss S[chrader]'s hose?
15. Did you at any time lie to shield yourself or others?
16. Are you accustomed to talk in your sleep when worried?
17. During the past few nights do you remember having dreamed when you might have talked in your sleep?
18. Do you wish at this point to change any of your statements regarding the thefts?

Each test took no more than six minutes. Much longer than that, and the pressure cuff became “uncomfortable and painful.” Larson worked his way systematically through the list until he came to Helen Graham, the full-figured student nurse with dark eyes and eyebrows.

No sooner had he brought up the subject of the diamond ring and stolen money—“The test shows you stole it. Did you spend it?”—than Graham's record showed a precipitous drop in blood pressure before beginning what looked to be an alarming rise, along with skipped heartbeats and an apparent halt in her breathing. Then, as Larson leaned forward to calibrate her blood pressure, the young woman exploded with rage. Ripping off the restraining cuffs, she leaped to her feet and ran over to

the rotating drum to read the squiggly lines that traced her body's reactions. Larson's police report describes what happened next:

We forcibly prevented her from going near the drums and upon going outside she told Miss Holt that if I had not had her tied down she would have smashed Officer Fisher in the face and told another girl that she felt like tearing up the record. Just before leaving the room she told all of us that the questions asked were perfectly atrocious and that she agreed with [the housemother] that such things should not be allowed.

Whereupon she rushed back to College Hall to accuse her roommate of betraying her, stormed out of the dorm in a rage, and "promptly spent the night with her lover."

None of the other students, according to Larson, posed any objections to the test. Nor, he reported in a scientific paper, did their tests show any anomalies—although the record of Alison Holt had not been entirely untroubled. Overnight, Larson learned more about Helen Graham from Miss Taylor and the other good women of College Hall. Apparently, she had doped herself before the preliminary test and slept heavily that afternoon; this may have accounted for her serenity the first time around. Moreover, she had admitted to friends that she had once stolen a notebook to cheat on a high school exam, had conducted more than one "affaire d'amour," and had once taken quinine to induce an abortion.

The next day, a distraught Helen Graham came to the police station, demanding to see her record. For twelve hours, Larson and Fisher bombarded her with questions until she "broke down and had an attack of sobbing." She continued to assert her innocence, but admitted she might have taken the items "in her sleep or in some possible mental disorder." She even offered to replace the ring and money if that would end the investigation. Larson, playing the good cop, told her she ought not to make restitution if she was innocent. Fisher, playing the bad cop, told her that if she was guilty, she would be prosecuted to the full extent of the law. Then she was sent home.

Every day that week she stopped at the police station to demand an appointment, but by prior agreement, the police refused to speak with her. Only when she threatened suicide did Larson meet with her again. Again

she insisted on making restitution with the understanding that the case be closed. Again he refused to accept the money unless she admitted her guilt. A few days later, she returned with a substitute diamond ring; the original, she said, had been “lost.” But as this new ring was of lesser value, Miss Taylor insisted on another. The next day, the police tailed Graham when she took the ferry across to San Francisco to meet her lover, Roger Harvey, with whom she went to Morgan’s jewelry store to pick out a suitable replacement ring. That evening, she presented the ring to Larson, swearing that the stone was similar to the original, while admitting that the original setting had been melted down. The next day, she was followed again, but this time she “made” the tail and eluded him.

The denouement came on April 30, when Larson arranged an interrogation in the time-honored manner: “Officer Fisher played the role of ‘hard-boiled cop’ with his usual adroitness, and I was her friend.” After several hours, Fisher stormed out of the room, telling her that when he returned he would show her she had been “booked for San Quentin.” While he was gone Larson got Graham to admit taking the money and the ring, plus some hose off the line—though she denied stealing underwear. She then signed this confession in Fisher’s presence, agreed to make restitution, and gave Larson and Fisher a version of her life history. After that she moved into a hotel, withdrew from the university, and prepared to return to Kansas, where she would wait for Harvey to come and marry her.

It was the first real-life crime solved by the “lie detector,” though some time would pass before hard-boiled reporters, the sort of men who judge a thing by the end it serves, would give Larson’s cardio-pneumo-psychogram that name—to his perpetual irritation. Of course, Larson’s rigged assembly had not itself exposed the guilty party. Instead, the instrument had nabbed Helen Graham by indirection: heightening her sense that she had been marked out as guilty; confronting her with the jagged evidence of her guilt; and then tightening the emotional screws until, in a climactic scene, she broke down and confessed. Its success owed less to the modern science of experimental psychology than to archaic rituals of guilt and absolution.

For Larson, the College Hall case did more than launch the American lie detector; it turned his life inside out. For one thing, it flung him on a

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scientific quest that would consume his efforts until the day he died, an old man obsessed with the device he had unleashed on the world. “Beyond my expectation,” he would write shortly before his death, “thru uncontrollable factors, this scientific investigation became for practical purposes a Frankenstein’s monster, which I have spent over 40 years in combatting.” In the interim, his machine-brought-to-life would commandeer America’s police forces, its business establishment, the national security apparatus of the U.S. government, and the public’s imagination.

The College Hall case also changed Larson’s life more intimately. One year after strapping her to his instrument, Larson married Margaret Taylor, the freshman victim of the College Hall thief. Immediately after the ceremony, a raiding party of college cops handcuffed the newlyweds together, packed them into a paddy wagon, and abandoned them in the countryside as a prank. As one of Larson’s assistants would later acknowledge, “It was an odd way to begin a romance.” A thirty-year-old Ph.D. cop married a nineteen-year-old Californian coed whose diamond ring he had recovered. The first time he met his wife-to-be he strapped her down and probed her innermost thoughts and feelings. Years later, he still had the record of their first meeting in his files, the zigzag trace of her heart as he asked her, “Are you interested in this test?”

The meet-cute story certainly proved irresistible to the boys in the press room. “INVENTOR OF LIE DETECTOR TRAPS BRIDE,” read the headline above their oval portraits on the front page of the *San Francisco Examiner*. According to the newspaper, Miss Taylor was so grateful for the return of her ring that she volunteered to play the role of “criminal” in further scientific tests of the detector. This, of course, involved asking personal questions. Then, one day, Dr. Larson was inspired to take their relationship to a more intimate level:

Fixing the “criminal’s” blue eyes with his own, the psychologist sternly asked: “Do you love me?”

“N-no,” murmured Miss Taylor.

And the wings of the . . . “lie detector” trembled, fluttered, waved a frantic “S.O.S.”

“You lie!” cried the scientist.

And Miss Taylor didn’t deny it.

Though Larson derided the newspaper dialogue as “pure hooey,” he privately acknowledged that the story contained a germ of truth. He had been trying, he said, to eliminate all those factors, aside from criminal guilt, which might have influenced the young women’s responses, when it dawned on him that some of them “might have been reacting to the questioner, not the questions.” So the Ph.D. cop brought back the attractive young Miss Taylor to test this proposition on the machine; first by asking her to lie to him, then by asking her out.

The instrument’s allure was irresistible that way. Given a chance to peer into the soul of a colleague, a friend, or a (potential) lover, who would not be tempted to pose a few personal questions?

Yet Larson soon had reason to doubt that he had actually solved the College Hall case. Was Helen Graham guilty, or had she merely *felt* guilty? After all, she had been subjected to a month of intense pressure and surveillance by the police, not to mention by her dorm sisters and house-mother. They had turned Graham inside out, but what did anyone really know about her?

As Larson honed his technique that year on a dozen more sorority cases, he became increasingly convinced that even an innocent person could be tripped up. Physicians had long been aware that certain physical signs were altered by the medical examination itself. The act of taking patients’ blood pressure, for instance, raised their blood pressure, and insurance examiners even factored in this test anxiety. By asking innocuous questions, Larson was able to define each subject’s “test normal.” But in the context of a police interrogation, a question like “Did you steal the ring?” was surely more stressful than “Do you like math?”—whether or not the subject was guilty. And there was the rub: guilty of what? As Larson quickly discovered, even people who had not committed the crime in question were troubled by “complexes” brought to the fore by interrogation. These clusters of emotions had to be cleared away before the subject could be cleared of the crime; and this in turn meant delving into their personal history, getting them to confess to unacknowledged “crimes,” some real and some imaginary, with no sure way to distinguish between them. In the course of his sorority investigations, Larson unmasked midnight poker games, petty shoplifters, pregnancies, and attempted abortions, often without solving the original crime itself.

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In another case of petty theft, when Larson put the supposed victim on his machine, she confessed to being pregnant and having gonorrhea, and threatened to commit suicide. A physician found no trace of gonorrhea or pregnancy, but he sent her to the Pacific Coast Rescue and Protective Society for psychiatric observation. In his effort to solve a petty crime, Larson had opened up a greater mystery. Larson, who had been thinking of attending law school, decided to study forensic psychiatry instead.

As for Helen Graham, as part of her police confession Larson extracted a version of her life history, with particular attention to her sexual past. “My first knowledge of sex matters came at the age of 7 years; we had a man working for us on the farm . . . [who] taught me all the things that a girl should know and used to play with my parts.” She had sexual intercourse at fourteen. A long-term sexual relationship began at fifteen. “I taught him the things that was taught to me.” She then pursued an affair with a medical student before coming to California and meeting Roger Harvey.

All this gave her an acute sense of shame. Among the litany of sins she confessed to Larson: she had once been caught stealing a notebook to cheat on a test in high school. “As the town was small, I always thought that everyone knew about it and that made me very unhappy. . . . I think I have never told you that I can hear voices in the air, and I firmly believe that the trees speak.” Larson began to suspect that Graham’s confession was the product of an overactive sense of guilt. No sooner had she returned home to Kansas than she wrote to say her confession had been obtained by trickery, and only out of fear that her affair would be exposed. The episode had precipitated a “complete nervous breakdown,” she said, and she had even contemplated suicide. In his write-up of the case, Larson acknowledged that Graham presented “all the indications of a psychopath, in all probability of a manic-depressive type.” Indeed, the evidence strongly suggests that Helen Graham was singled out mainly for her sexual transgressions, much like her contemporary Carrie Buck, whose sterilization, supposedly for “eugenical reasons,” was upheld by the Supreme Court.

For his part, Larson wrote Graham a letter of consolation. He pointed out that she had much to live for. If she was guilty, she had been treated leniently. If she was innocent, why had she told so many fluctuating and contradictory stories? He told her not to lose her faith in men. “I am very

sorry that you have been feeling blue and wish that I could do something to make you feel better.” A year later, she wrote a more upbeat letter to August Vollmer, Berkeley’s chief of police. Though Harvey had never turned up in Kansas, she had met a charming Irish architect who was working on her parents’ home. As for John Larson, she wrote, “Dr. Larson is indeed a wonderful scientist and truly a Man. The department was indeed fortunate in securing his services.” Yet she still insisted on her innocence. “This,” she wrote “is the closing ‘chapter’ of my case.”

But for the lie detector, it was the opening. The Berkeley police ballyhooed the machine’s victory over deception. Chief Vollmer himself was the first to tell the story for the general public, in a soft-core version he published that year in the *Los Angeles Times*. Casting himself in the role of Sam Spade, the Chief wallowed in the hothouse sexuality of the all-female dorm. “Listening in on the heart beats of fifty charming, impulsive, romantic university coeds to discover which one was a thief and save an innocent pretty girl from unmerited disgrace was a job big enough, if not impossible, for the average police department.” For what “average criminologist” could possibly stand up against the collective judgment of “forty-nine giggling, thoughtless, loving embodiments of budding flapper exuberance”—especially when they had already fingered the aloof Marjorie Small as the thief? According to the testimony of Georgia Long—a “magnetic, gorgeous creature” with “revealing eyes of purple velvet”—Miss Small had been seen entering another girl’s room and removing the stolen book. But Dr. Larson’s machine quickly discerned the “wild reactions” beneath Miss Long’s cool front. “Her face was like a mask now, cold, composed. The dark lashes lifted to discover hard, steady eyes. The smile was gone. She leaned forward slightly and gritted her teeth as if determined to betray no more emotion.” Yet against her will the machine read her body’s message. Haunted by her guilt, she broke down in tears and confessed to having stolen the book. Yes, appearances can be deceiving—especially in a tight sweater and pearls—but the lie detector could not be seduced or bamboozled. In his two years with the Berkeley police, Larson would investigate some two dozen sorority cases, and very few fraternities.

In an America beset with gangland murders, industrial sabotage, boot-

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legging, and political corruption, these trivial sorority cases dramatized the lie detector’s potential as an instrument of justice. Its proponents—and editors quick to see the hot angle to a story—took advantage of the age-old misogynistic assumption, applied first to Eve, that women are subtle, deceitful, and collusive, if only to confer the contrasting virtues on the machine’s operator. Where cops were distracted by appearances, the lie detector probed beneath the skin. Where institutions were corrupt, the machine could not be bribed. Where men were slaves to their emotions (and to the organs those emotions aroused), the machine recorded the emotions of others, so that its operator could remain dispassionate. Like the antiheroes of Dashiell Hammett’s new style of crime fiction, the lie detector operated in the name of disinterested justice.

This was a man’s justice: skeptical, mistrustful, objective—with women cast as creatures of guile and temptation. It’s the oldest dichotomy in the nature lore of the West—masculine science investigating feminine mystery. And it played to a lurid sort of voyeurism. As one polygraph examiner later admitted, “I sometimes feel like a window peeper.”

Yet Graham was hardly the naive test subject Larson portrayed in his scientific write-up. Even on her first exam—the original encounter between a human subject and the modern deception machine—Graham had apparently taken medication in advance to mask her physiological reactions. Several decades would pass before psychologists—who ought to have known better—would realize they could not treat their objects of study as other scientists do, as brute phenomena of nature. When Einstein inscribed above his fireplace the motto, “Nature’s God is subtle, but He is not malicious,” he acknowledged as a corollary the possibility that people might be malicious, if also sometimes subtle. Yet even polygraph operators—who surely knew better—seemed not to consider the myriad ways their subjects came fore-armed. Countermeasures to lie detection are as old as lie detection itself.

All through 1921, long after Graham had returned to Kansas, the petty thefts continued in the College Hall residence. In retrospect, Larson wondered whether some of the young women had conspired to distract him during the exam. He bemoaned the way his investigation had been hurried. He should have been allowed to test the chambermaids, he said, not to mention the housemother and her family. It would become a familiar regret; get hold of a lie detector, and who knew whom you could trust?