A Memorial Day in Cambridge

"A thinking machine?" Hermes asked.

"A *golden* thinking machine," the voice shouted back. "Behind the Shrine of the Lilies." The last words were warped. "I finally tracked it down . . . Took six months to excavate. Extraordinary . . ." There was a long whistling tone. "A thinking machine. Pure gold . . ."

"But you never mentioned this before," said Hermes, pressing the receiver to his ear.

A pause. "I meant to keep it as a surprise." The voice at the other end was muffled, barely surfacing above a low buzz. ". . . of the greatest significance for archaeology . . . It crowns my career . . ." Suddenly the voice was forceful again. "This find strengthens your theories . . . And, my dear nephew, the inscriptions on it are very similar to the ones you deciphered in your dissertation."

Before Hermes could respond, the voice snapped back, "See you tomorrow then. I'll be expecting you here. Come straight over from the airport. I'll be flying in from Santorini tonight. That will give me time to prepare lunch and to polish my little thinking machine . . . a centerpiece for the table."

"Yes. I suppose. Thank you. All right. I'll be there," said Hermes and hung up.

It was quiet again in the room. The whole house was still. Outside the wide-open window nothing moved but branches that rustled faintly in the air. No cars. Not even people. It appeared that the apartment, the building, the whole city of Cambridge had been deserted, peopled only by the breeze and the trees that late Memorial Day afternoon.

His watch showed he had two more hours to get to the airport. He got up, looked around. On the floor near him, clothes, food, utensils, papers and books, some with their spines slashed and their leaves loosened. Farther away, envelopes, boxes, drawers, their contents emptied. All lay scattered, in shambles, where they had been flung.

Hermes set to work. He moved among the heaps swiftly, splitting them and joining them. He carried with his right hand, picked up and placed with his left. He did not interrupt except to check the time and, once, to answer the telephone. There was no one on the line. He stood for some time holding a mute receiver as the silent, empty end of the day closed in.

Slowly, small neat heaps emerged. The floor appeared to be divided into a strange matrix. To a mathematician it might have looked like a physical model using discrete objects to accompany the demonstration of a problem. To an archaeologist, on the other hand, it might have seemed like a table in a laboratory covered with sherds, sorted in piles according to some typological system, or like a table for ordering hieroglyphs drawn on paper, set up to interpret an arcane ancient inscription.

Since his childhood in Greece, Hermes had been intrigued by numbers, structures, arrangements. But he had been equally absorbed by distant alphabets and archaic graffiti. Perhaps this dichotomy had stemmed from his parents' background; his mother was a Polish-born mathematician who had never practiced her profession, while his father was a very prominent Greek archaeologist.

The split persisted after Hermes had entered Harvard. Initially he had entertained the idea of studying architecture "to reconcile my two hemispheres," as he had said at the time, but then, while reading *The Decipherment of Linear B,* he discovered a different solution: archaeology, although of an unconventional kind.

He specialized in the decipherment of proto-Hellenic texts using modern cryptanalytic methods. Nine years later he received a doctorate from Harvard in archaeology for his work deciphering archaic texts; he had developed a reputation for his brilliance in mathematics and his erudition in the classics.

Copies of his dissertation were read with equal attention by ar-

chaeologists, philologists, cognitive scientists, and AI researchers. One reader commented that "the work contributes to making precise and explicit what we have referred to, rather vaguely, as 'archaic' or prerational mentalities in the development of human consciousness." Another wrote that "the research takes a computational approach. The results, far from being reductive, offer a fascinating insight into human intelligence as a super deciphering machine." A third noted, "I never realized until now that a rigorous study of problems that one would think amount to nothing more than cryptanalysis could yield so much knowledge about the workings of the human mind."

There were negative remarks as well, of course: archaeology should concentrate on its traditional objects rather than on such alien techniques, there was too much speculation about the human mind unsupported by hard physiological evidence. Hermes' responses to these objections were considered prototypes of exactness, thoroughness, and succinctness, which only strengthened his academic reputation.

But Hermes had also attracted the attention of nonacademic groups, including members of the business and intelligence communities, especially since the popular press discovered his work: for example, *Time* magazine published a short but laudatory paragraph under the title, "The Code to End All Decoding?" and printed his photograph. The face that gave away a pleasant, almost archaic, smile and nothing else. Hermes gave his photograph but refused to be interviewed or to comment on the text.

To understand just how Hermes' writings appealed to such diverse circles, how this somber work, loaded with jargon and hieroglyphs, excited so many, and to comprehend the strange events that followed, one must take into account the context within which all this occurred.

Ours is called the epoch of information—more people are occupied every day in the handling of messages than in any other work; more information is processed than at any previous time by humans and machines of varying degrees of intelligence. Hence the interest in everything that helps the processing of information, such as cognitive studies, the design of brainlike machines, and artificial intelligence.

Hence the belief also that the control of information is more important than ownership of resources or means of production. The investment in the accumulation of information is matched by the fabrication of misinformation, by censorship, interception, eavesdropping, tapping. Global spying has brought with it the omnipresence of secrecy. Millions of dollars are being invested in supercomputers for enciphering. Thousands of researchers are trying to invent the impenetrable code or the universal decipher key and are monitoring who's-who in the world of code making and code breaking, who develops what, for whom, and where the upcoming talent can be found.

Thus it happened that Hermes, close to finishing his undergraduate honors thesis in which he interpreted half-a-dozen proto-Hellenic inscriptions and presented an appendix containing a technique for solving a cumbersome combinatorial decoding problem, came to be invited to lunch by an enthusiastic middle-aged Harvard alumnus.

Soon after the clam chowder it became evident that the alumnus was an expert in international financing who had no understanding of archaeology and no interest in acquiring any. Over pralines and cream ice cream, Hermes was offered the job of assistant "crypto-designer" in the data security section of a major stock brokerage business in San Francisco.

There Hermes lasted for eleven months exactly. Much to the regret of his employers, on a Monday morning, following a Saturday visit to a Berkeley bookshop where the sight of a book with the title *Greek Myths, Machines for Thinking?* caused him a brief blackout and cold sweats, he resigned.

Four years later Hermes finished his doctoral dissertation, deciphering more inscriptions using artificial-intelligence-related theories of language understanding. At that point more invitations for eating out arrived: three times for nouvelle cuisine, twice for Japanese gastronomy, once for a North African feast in New York. And each time he passed up an attractive employment opportunity.

But success in research also brought Hermes more bizarre experiences. He realized he was often followed; his office was searched, his mail intercepted, and his telephone tapped, generally not very dis-

creetly. One night he arrived home to find his apartment broken into, the purpose transparently frisking rather than theft.

All this might explain why, after his very first year of teaching, Hermes unexpectedly applied for a grant that would permit him to get away "for a year to work under the freest possible conditions." The grant had been awarded to him. But how the wishes of men diverge from the commands of the gods. Little did Hermes know that he was already heading toward a rendezvous with greater trouble.

An hour had passed since he had begun arranging his intricate matrix landscape on the floor. In a way Hermes was going over a routine for which he had once written a computer program (a modification of BAGGER, an existing, simple expert system for bagging groceries), which contained his best backpacking techniques. Hermes' experience was vast because as an undergraduate he had made many amateur photographic excursions to national parks with his backpack as his only companion, and he had written a computer program to advise his archaeology colleagues on how to pack for a dig. A few years earlier Hermes had written a similar program for his college roommates and had called it KNAPSACK. He was alluding, of course, to the famous cryptanalytic problem and to the mathematical problem of the same name—with a knapsack of fixed size to fill up, selecting from a number of fixed-size objects in such a way that there would be as little unutilized space left as possible. Hermes' problem had to do with how to put his belongings in boxes before leaving for vacation.

All the bits and pieces had found their place, some in extra-large orange plastic garbage bags that he carried to the backyard, some in cartons pushed against the wall with notes on them: "Please give to . . ." or "This is to be kept in the basement" or "This is for you." Hermes' dark hair and smooth olive skin were covered with dust.

The large room was bare. At its center stood a full knapsack and a strange contraption of minimal size and elegant proportions, in a soft black leather case. Its unrevealing black boxiness made the object appear to explode with power. And for 1983, the year Hermes is taking off on this trip, this year of the spies and the Mafia, this disturbing

year when the unthinkable was being thought of in at least two places in the world, this "laptop" machine was at the cutting edge of technological achievement and at the high end of the centuries-long art of the artificial.

The machine had been given to Hermes by a student named Black, a *bricoleur,* an amateur musician, and a person of great powers of persuasion, who arrived one day in Cambridge to do graduate work in electrical engineering. To Black, space and time occupancy had a theological identity as evil powers to be purged through shrinking; his only dream was to make the smallest and most powerful thinking machine on earth.

Days and nights passed. Black calculated, struggled, constructed, and one day appeared at Hermes' doorstep with the prototype finished.

Hermes was stunned. "It feels like a musical instrument."

"It's like watching the movies," Black added timidly.

Most of the machine's hardware parts existed already; Black had put them together differently or in a different context. The same with the software modules of its demonstration program. Black, with the help of Hermes, created a condensed supermenu of different styles of machine thinking, a compact programming environment. It was "a tool kit" that, as Hermes said, could easily be telescoped into a mind factory or, in the words of Black himself, could be "walked around as a garden of endless wanderings," and in the words of the chairperson of the archaeology department, was simply "a conceptual thesaurus."

Black wasn't completely content with his product when he delivered it to Hermes. He had whispered, "One day I hope we'll make a machine for alternative types of logic, a machine that will make it easy for us to think in ways we can't yet think. We'll write stories in archaic cognition style and essays in the ultimate cryptogram code."

Hermes never saw Black and his twin computer again. Nor did any one else in Cambridge. Black never got his degree. Instead he officially entered the list of the Missing Persons Bureau. Hermes inherited the computer Black had left with him, and the copy Black was known to have kept vanished, probably to be devoured as an industrial prototype.

There was nothing left to do in the room. He showered. From the refrigerator he took his last bottle of Perrier. He leaned back his long head, dolichocephalic, as it was referred to in the archaeology department, and drank slowly.

A breeze was coming in from the sea through the open window. The magnolia trees rustled, as if the backyard was filled with invisible things moving smoothly, nearing the house, and then retreating toward the shadowed fence. He shut the window.

He called for a cab. The room was getting darker. The cab was late. Maybe somebody was trying to stop him. The telephone rang again. He picked it up. He waited. Once more, nobody on the line.

Suddenly the clean room, the vacant house, the serenity of that Memorial Day, gave off an exhilarating aura of freedom. Greece was so remote from worries, constraints. Just a place with an apartment waiting, a couple of distant relatives, a few crumbs of memories, the Archaeological Institute, ruins, coffeeshops, and perhaps a "golden thinking machine."

He put the knapsack on his back and hung his laptop computer on his left shoulder. He opened the door. The corridor was dead still. He closed the door and locked it. He put the key in a small manilla envelope and slipped it under the door. He went down the corridor and came out onto the front porch.

The street was empty as far as he could see; only a small brown van dozing on the right. The sun was setting ahead of him. He closed his eyes, sensed the air, and heard the taxi honk.