

THE SEARCH FOR THE FOUNTAIN OF PROSPERITY

by Michael Stevenson

The theme of the quest is ancient. In many versions, it is the search for a precious object with magical properties: the Golden Fleece, the Holy Grail, the Elixir of Life. The precious object in most of the stories either remains elusive or is a disappointment when found ...

Fifty years ago, in the aftermath of World War II, we economists began our own audacious quest: to discover the means by which poor countries in the tropics could become rich like the rich countries in Europe and North America. Observing the sufferings of the poor and the comforts of the rich motivated us on our quest. If our ambitious quest were successful, it would be one of humankind's great intellectual triumphs.

Like the ancient questors, we economists have tried to find the precious object, the key that would enable the poor tropics to become rich. We thought we had found the elixir many different times. The precious objects we offered ranged from foreign aid to investment in machines, from fostering education to controlling population growth, from giving loans conditional on reforms to giving debt relief conditional on reforms. None has delivered as promised.

William Easterly, *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics* (MIT Press Cambridge, 2001)

This is the story of a search for a quest—not the quest itself, but the search for what purports to be the only tangible object of the quest, the 'fountain of prosperity'. The story is as much mystery and fantasy as it is economics or history, or even sculpture for that matter. Like the quest itself, the search is steeped in superstition and magic. Forecasting economic growth is, after all, a form of divination or scientific fortune-telling and, like all predictions, remains permeable to the irrational. While the quest involves looking into

the future, my search involves divining the past. Over a number of years, in diverse locations, I pieced together the following story.

Some years ago, while I was researching the automobile industry in New Zealand, I heard rumours of the existence of a physical model of the country's national economy. Intrigued, though unsure at first exactly what I was searching for, I found the Phillips Machine hidden in plain view at the Institute for Economic Research in Wellington. The machine stood there, on display yet still somehow undiscovered, concealed by its own obscure history and, perhaps, by its improbable form. I found myself standing before a large, upright Plexiglas and metal device, built partly into the ceiling. Almost biological in appearance, like some kind of cyborg vascular system rather than an instrument of use to economic science, it was crammed awkwardly into the tiny foyer beside the communal drinking fountain. This juxtaposition began to seem more than accidental when it was explained to me that the Phillips Machine itself runs on water. More precisely, it is a hydromechanical analogue for total national income—a hydraulic computer.

I learned that the economist Alban W. ('Bill') Phillips had built the machine in 1949 while a student at the London School of Economics, apparently to fathom the complexities of Keynesian economics. Confused by the various macroeconomic theories, Phillips fell back on his skills in both engineering and dairy farming and set to work in his landlord's garage. Using mostly war-surplus materials, including parts salvaged from a Lancaster bomber, he began to experiment with a system that represented capital reserves as tanks of water and monetary flows as that same water circulating around interconnected plastic tubes.

What is most striking about the machine is that it gives 'the national economy'—that invisible yet omnipresent being—a physical body. The hitherto unseeable multitude of social processes and restless circulatory activity that we call the economy and recognise only via its abstractions can, with this model, be viewed in its entirety, in the round. With its various tanks accumulating water/money via emissions from the central circulatory flow, a number of economic variables can be determined; thus the machine presents an illustrative simulation of economic processes. The machine is apparently quite accurate in its calculations, but beyond these

economic capabilities it is also an undeniable sculptural presence. Economics is full of fluid metaphors, and Phillips's insistence on a cascading flow of water brought to life something beyond the functional. Quite inadvertently, Phillips created a fountain from whence, it can be said, a plentiful flow of magical, biological, and alchemical allegories spring forth. These allusions are not entirely unfamiliar, reminding us of metaphors employed by Karl Marx when describing the processes of the economy: 'crystals forming out of liquids, liquids passing back to crystals, metamorphoses, social metabolism, the dramatic encounter of life and death.'¹

I was told that Phillips had also attempted to use electronic technology to realise his macroeconomics model, but it seems he was dissatisfied with the results. Apparently, this was not due to a lack of processing power but to a concern with the way the results could be displayed. At the time, the industry standard was to input information using punched paper tape, with numerical results tabulated off-line. This method was not only visually uninspiring, but it also failed to show the computations in progress. Phillips constructed his machine with the classroom in mind, and it seems he chose the hydromechanical solution because he felt it was more likely to capture the imagination of his students. In doing so, he brought about a strange convergence, fusing the objectives of the economist with those of the sculptor. He liked to dye the circulating water blood red, purely for dramatic effect, unleashing the full sculptural possibilities that lay dormant in the machine. This act of economic transubstantiation was not new: Thomas Hobbes had compared monetary circulation with that of blood 300 years earlier in his most influential book, *Leviathan*. Now the Phillips Machine called forth not only the power of the living but also that of the dead.

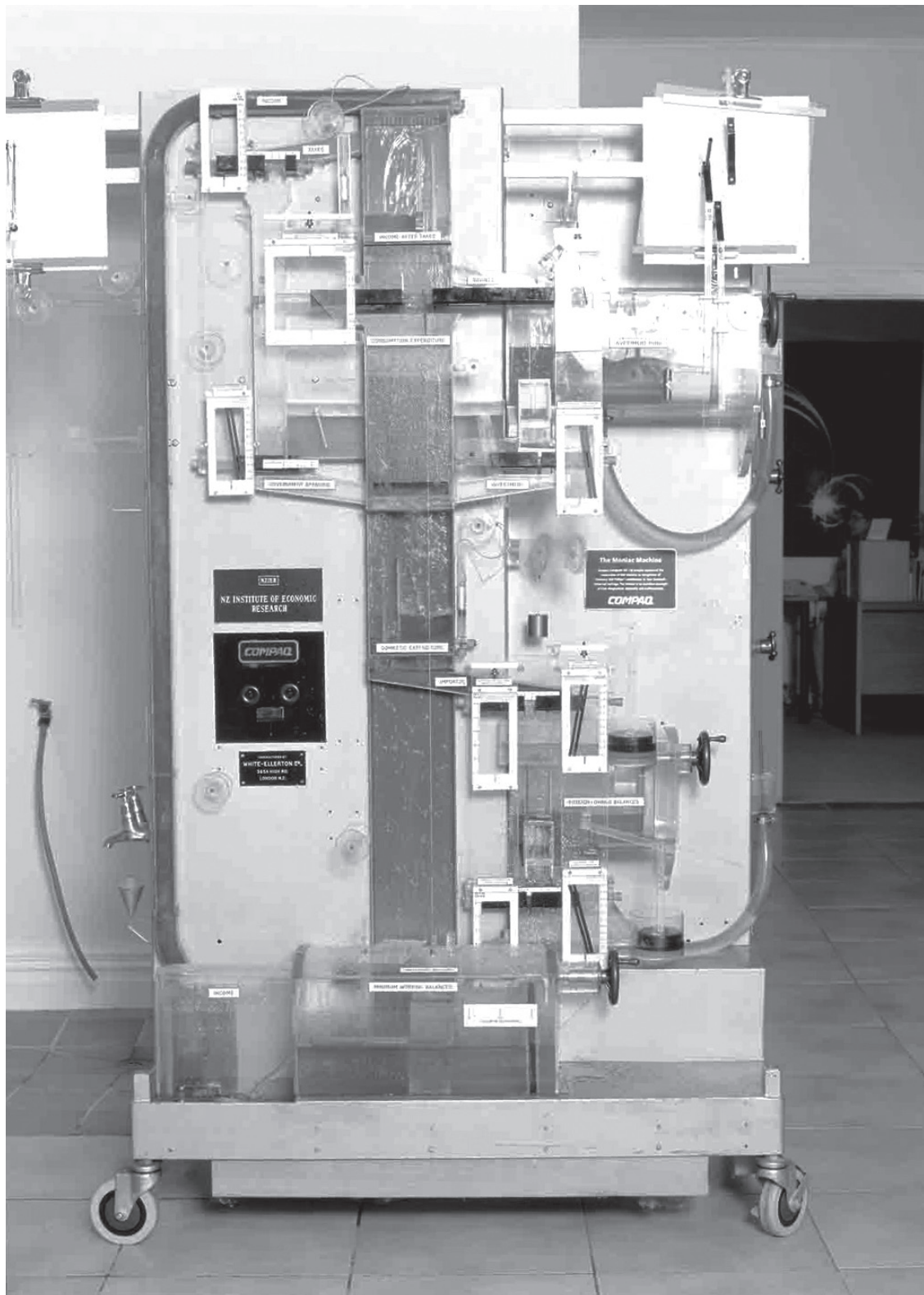
The Phillips Machine was first presented at a seminar held by a Professor Robbins at the London School of Economics in 1949, where it stunned both students and faculty. Some had simply shown up to scoff, but interest spread rapidly in the academic world. Phillips soon put the prototype into limited production, and in total perhaps fifteen machines were built.

Most Phillips Machines were destined for academic institutions in England. Scholarship on the subject has concerned itself primarily with these applications, but in the March 1952 issue of *Fortune* magazine I found indications that

the machines also had a life in America. At the London School of Economics archives, which are the only real repository of information pertaining to the Phillips Machine, I began a more intensive search. I discovered that Abba P. Lerner, the economist credited with popularizing Keynes's ideas in America, had become an enthusiast for the machine after seeing it in London in 1950 and had secured the rights to sell the device in the United States. Lerner, always the populist, applied good old American business know-how to his new enterprise and christened the machine the 'Moniac', a corruption of 'money' and 'mania', and also perhaps a reference to a well-known early computer called the 'Eniac'. The name change was bemoaned by Lerner's colleagues, who thought it a devaluation of Phillips's work. A letter I later read at the archives of the University of California, Berkeley indicates that at one time Lerner proposed calling the machine the 'nymph' (or 'NIMF', for National Income Monetary Flow), thinking perhaps that the frolicking, semi-naked maidens of the fountain would bring him buyers. He acknowledged, however, that this new name would probably have engendered further bad jokes, in this case about nymphomaniacs. After spending several days at the Berkeley archives, I became aware of Lerner's fondness for this kind of salesmanship.

The name change was not the only modification that was made to the Phillips Machine when it entered the United States. Structural differences in the U.S. economy meant that further engineering work had to be carried out before it was fit for U.S. consumption. The American Moniacs were calibrated in dollars, and additional development work was done by the research division of General Motors in Detroit. It was there, in Motor City, that a so-called accelerator was developed. A brake, apparently, was not thought necessary.

Although the machines rapidly fell out of use in Great Britain (by the late 1950s they had been all but banished to the basements of their respective institutions), Lerner peddled his machine way beyond its obsolescence date. Seeing in it, perhaps opportunistically, a way to spread his own message, he brought this cumbersome machine along with him wherever his itinerant academic career led. (There is an account of Lerner with a leaky machine at an American Economic Association meeting in a New York hotel lobby in the 1970s.) He passed up no chance to publicise himself, or the machine.



A Moniac at the New Zealand Institute for Economic Research, Wellington, New Zealand

In correspondence with *Life* magazine, he urged the editor to include a piece on the machine and followed that with, of all things, material on his recent wire sculptures. (It is interesting to note that at this time economics still existed in a sphere that included the arts—indeed, even wire sculpture). Of all the accounts and letters I uncovered at Berkeley, however, one detail was enticing beyond anything else: a passing reference to the fact that, sometime in the early 1950s, a machine had been ordered by, and dispatched to, the Central Bank of Guatemala.

The search therefore brought me to Guatemala City. On busy 7a. Avenida, downtown in Zona 1, I came upon the Central Bank, situated in a complex beside the other fabled institutions of the modern nation-state. It was an extremely optimistic building—mid-century Latin modernist—and, like the other structures, it was concealed behind a deep, carved concrete façade replete with Mayan flourishes. A series of fountains were arranged to welcome the visitor, but it had been some time since the water had actually flowed in them. I had to take care, as I attempted to cross the dry plaza, not to walk into the empty, tile-lined pools that ringed the complex. It seemed that, metaphorically at least, the bank had lost its power over the forces of circulation. As I passed the grand façade, rusted steel reinforcing rods could be seen through the concrete rendering.

Inside, I was met by an elderly, bespectacled gentleman named Elvidio Aldana. He was the longest-serving employee of the bank and was known to all in the building simply as Elvis. It was not just his name that distinguished Elvis from the buttoned-down bankers; he wore a large tweed cap and his shoes shone with an unusual radiance. He would have been more at home in a Latin jazz club than at the Central Bank, and he had the tempo to match. He seemed very excitable and immediately launched into conversation. One of the first things he said to me was 'Phillips was brilliant!'

Elvis signed me in at the front desk and escorted me around the building. We paused in front of a red-lit glass case containing a rather badly stuffed bird with peculiar tail feathers. The bird was a quetzal, the country's national symbol, which shares its name with the official unit of Guatemalan currency. Given that the Central Bank issues quetzals, and the bird has, over the years, been brought to near extinction,

the symbolism was hard to miss. Next I was escorted to the office of our host, Lic. Sergio Armando Hernández Rodas, on whose various desks was arranged a curious collection of model sports cars—Lamborghinis, Ferraris—none of which were to be seen on the streets outside.

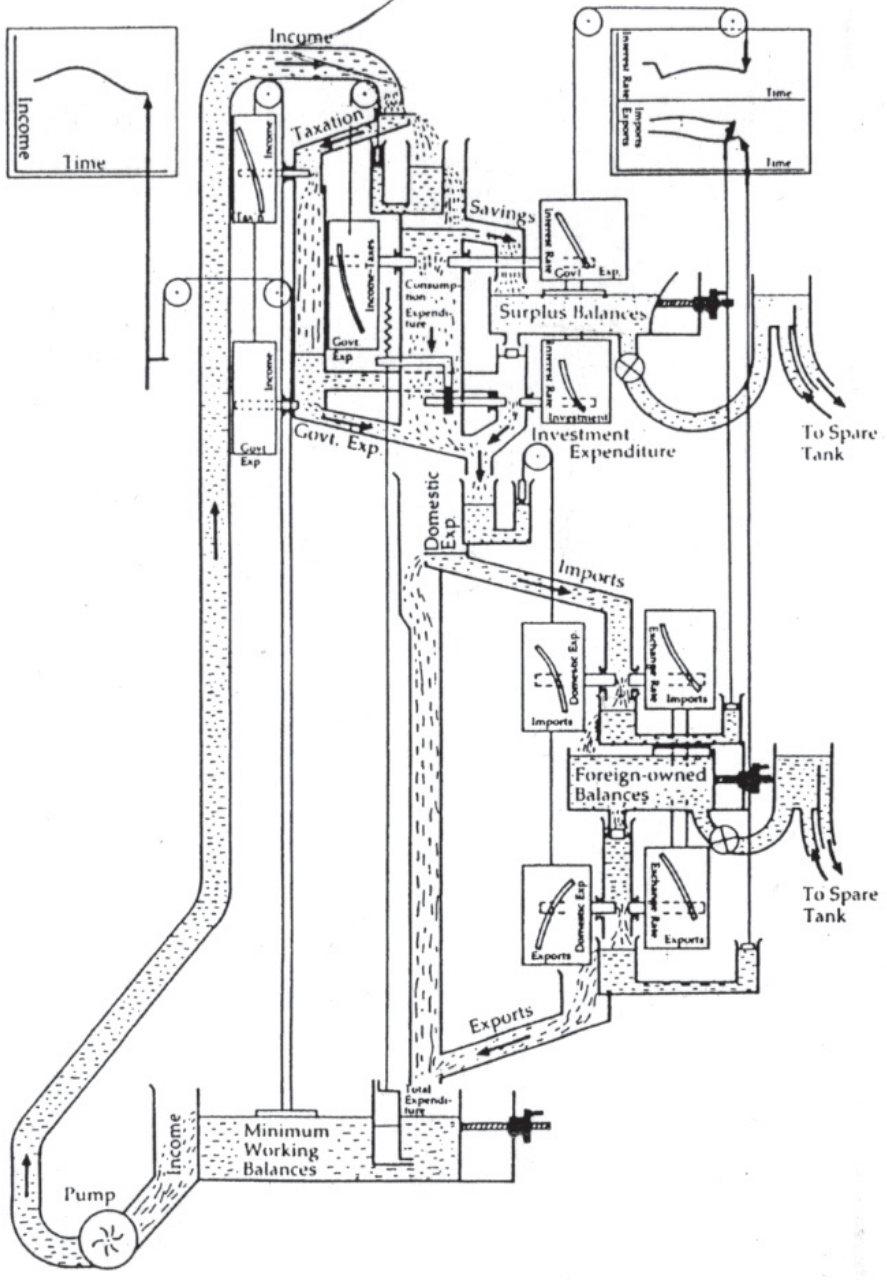
Elvis, who is the bank's chief librarian, an economist, and—some say—a historian, handed me a document. It seemed that rather than show me the archival material pertaining to the Moniac; he had instead prepared his own three-page account of its history at the bank. Not reading Spanish, I could only pick out obvious words from the text and wonder what Elvis had uncovered. Everyone who had read the Spanish agreed that it was not only accurate but also brilliantly observed. I noted that there was no bibliography and that nothing was footnoted. Our host took it upon himself to read it aloud for me in translation, and it was at this point that I realised the original sources would probably remain elusive. The account itself was written from so deeply within its subject that, even with my knowledge of the machine, it sounded like science fiction.

There was a fourth man in the room, who sat quietly; he spoke only Spanish. This was Señor Alberto Muñoz. After a chance meeting in the streets of Guatemala City, Elvis had invited this former bank employee to meet us. It seemed that most of the new information about the Moniac had been passed on in the street. On a number of occasions, Elvis turned to me, his index finger directed toward his large bifocals, and exclaimed, 'This man saw it ... with his eye!'

Later, in the library, I mentioned to Elvis that in my birth country, New Zealand, the national symbol is also a bird—the kiwi. The colloquial name for the New Zealand currency also comes from the country's national symbol—the 'kiwi dollar', or even simply the 'kiwi'. Upon hearing this, Elvis took me to his chaotic desk at the back of the room and opened a drawer that appeared to contain freshly printed banknotes. The notes were in bundles, each with a paper band around it, as if straight from the mint. It was unclear if this was actual legal tender; since the bundle he removed was made up of one-quetzal notes and I had seen only one-quetzal coins since I had arrived. Nonetheless, he sat down at his desk, signed the notes as if he were the president of the bank, and formally presented one to me.

It was clear that a Moniac had been sent to the Central Bank, though the details about its time in Guatemala remained shrouded in mystery

HYDRAULIC ANALOGUE OF MONEY FLOW



and its actual function at the bank may never adequately be understood. Also, it seems that it arrived damaged, and it is unclear exactly how or indeed if it was repaired. I later discovered that Lerner had visited to instruct the bank in its use, the knowledge of which seemed to have vanished soon after he left town. At the Library of Congress, turning the pages of one of Lerner's sweat-ridden pocket diaries, I finally came upon the relevant entry. It simply stated: 'Arrived Guatemala, set-up Moniac.' The date was March 23, 1953.

Beyond the hearsay and theater of my visit to the bank, the symbolism of the Moniac animated each and every conversation I had there. It had arrived at the bank at a crucial time, right at the climax of a period known as the Ten Years of Spring. This time of liberal reform was dramatically curtailed by a CIA-led coup in 1954, which in turn ushered in a forty-odd-year period of largely uninterrupted military rule and then civil war. The coup was—unofficially at least—launched in response to the land-reform program enacted by the government of Jacobo Arbenz Guzmán after it gained power in the 1950 election. The program returned land to the indigenous population by shifting ownership from the large landholders—the upper classes and foreign corporations. The foreign interest that stood to lose the most in these reforms was the Boston-based consortium United Fruit Company, the largest banana producers in the world.

The Moniac entered service at the Central Bank in 1953, just as the land-reform process began, and became an accidental witness to the tumultuous events of the next fifteen months. In desperate times such as these, there is no reliable counsel; no one knows what is being plotted, what pressures are being applied, or who will turn where. In such times, confidence can spring from the most unlikely places, and perhaps this is a clue in understanding the Moniac's true function at the Central Bank. It is often the case with complex machines that we attribute mysterious powers to them, powers they simply cannot possess. It may turn out to be that the Moniac—whose economic capacities were impaired—functioned more as a talismanic advisor on the economy and perhaps even the state. With the enforced regime change in 1954, the machine—and everything it stood for—was cast out.

From Elvis, I learnt that the machine had been given to the University of San Carlos, and so I

resumed my search. The cab driver finally located building 88, the Economic Sciences Faculty, on the university's sprawling, run-down campus in Zona 12. It is the only public university in Guatemala, and though it is publicly funded, it maintains a certain autonomy from the government by invoking its founding decree—the pursuit of pure academic thought. Like the Central Bank, such independence has not always found favor with the government of the day, and the long-term result seems to be that the funding tap has been turned off, or at least reduced to a trickle. I walked over dry, bare terrain to approach the school, while in the distance I could see that the weather was changing.

I had an appointment with Lic. Eduardo Antonio Velásquez Carrera, dean of the Economic Sciences Faculty. He brought me into his spartan conference room, where a large desk stood beneath a frieze of framed black-and-white photographs of men in academic dress—this was the history of the deanship of the school. We sat down, and I showed him pictures of the Moniac. He was completely unfamiliar with the machine, though he had no trouble in describing to me the exact functions it could facilitate. From my cursory view of the building, and indeed the university as a whole, I guessed that the campus dated to the 1960s. Assuming that the school had relocated here a good ten years after the Moniac had been donated, it seemed unlikely that the Guatemalan machine was still in existence. It certainly was not here at the school, although the dean would not let that hope die. His secretary brought in large bound records dating from 1954 and 1955, and the dean scrutinised the handwritten inventory, but nothing of interest was found. He then began making telephone calls, and eventually an elderly gentleman appeared. We were introduced, and he sat down to read Elvis's account. Later I was informed that he too had seen the machine at the Central Bank. No further information was divulged.

Señor Velásquez Carrera had initially brought me into the conference room to introduce me to Dr Manuel Noriega Morales, a former dean of the school, by way of the framed portraits hung high on the walls. The dean pointed to the picture of Morales stationed in the middle of the frieze; the dates under his picture read '1948–1952'. The dean was convinced that Dr Morales had, along with President Guzmán, been responsible for bringing the Moniac into the country. If this was the case, the machine

had certainly been in contact with extraordinary personalities. The title 'Dr' was important, it turned out, as Morales was the first Guatemalan to receive a PhD. He was also the only Central American present at the United Nations' Bretton Woods Conference in 1944, where the U.S. dollar's supremacy in the international monetary system was institutionalised—against the advice of John Maynard Keynes, the British advisor. But more importantly, Dr Morales was the founding president of the Central Bank, a role he maintained into the 1950s. When I asked why he was so sure Dr Morales was involved in the Moniac's history, the dean simply said that it was very much Morales's kind of machine. Again I was reminded of the mythology of the times and how neatly the Moniac story fitted this unfulfilled desire for economic autonomy. History in Guatemala, it seemed, was not a topic open to debate, and many aspects remain off-limits to this day. Unknowingly, I had introduced a new personality into these events—in the form of the Moniac—which had yielded at least some new grounds for discussion. Perhaps this is why so much of what I heard in the city circulated only in the form of allegory.

The real history, however, was not allegorical; it was brutal. Researching the history of the school on my return to San Francisco, I discovered another aspect of the story. The school had for many years taught a brand of economics with a distinctly leftist bent; it was described by some as Marxist. During the worst years of the civil war, in the 1980s, the military government added the dean of the school to a long list of assassinations. A faculty member attending his funeral was gunned down on his way home, and a third member of staff was also killed. All this took place in the period of about a month. The portraits above the table where I sat and talked with Señor Velásquez Carrera were hung with a regularity that revealed nothing of these events. As with a number of other subjects, these stories remain unutterable in Guatemala.

My return from the university was a disorganised affair. No taxi driver would pick me up in Zona 12 that late in the afternoon, and so eventually I was driven by the secretary in the dean's own vehicle. The threatening rain had now arrived and was turning the dry, dusty ground to mud. With the car doors locked, I passed through the squalid, desperately poor neighborhoods of Zona 8.

We drove in tandem with a decrepit diesel loco as it attempted to haul three wagons of scrap metal down a ramshackle railway line. I had wondered for some time about this railroad system, which in the 1950s was still the only transport link from the Atlantic. If the Moniac had been sent from London by sea, it eventually would have been hauled along these wet tracks. They were at the time part of a system entirely owned by the United Fruit Company. From the ripening bananas on their vast plantations in the Motagua Valley to fruit stands across America, United Fruit had developed what you could call a vertically integrated business system that guaranteed them money from every transaction. By the 1950s, their operations in Guatemala included electricity generation, mail delivery, a telephone network, and, of course, the railroad system. In short, it was difficult to do business in Guatemala without involving 'The Company', which became known as *El Pulpo* [The Octopus].

While the Moniac bore the hopes of economic independence, the hypothetical path it took to arrive at its destination suggests just what it was up against. If it came to Guatemala by sea, it would have been paid cargo on the United Fruit shipping line, the Great White Fleet. It would then have been off-loaded at their facility at Puerto Barrios, the only port on the Atlantic, where it would have incurred further fees. It would then have been hauled—for a price—along the United Fruit railroad network to Guatemala City. Hemorrhaging from these costs, the "fountain of prosperity" would have arrived at the Central Bank damaged (also perhaps courtesy of United Fruit), drained of funds, and already in debt.

Ultimately, perhaps, the Moniac functioned neither as a Keynesian economic calculator nor as a tropical talisman for safe passage through the mysteries of global finance. Rather, it might be seen as a symbolic victim of the accelerated obsolescence of Keynesian thought in an international financial system dominated by the United States—a system committed to the relegation of all competing ideologies, with military force to back it up. It is this reality that led to the disappearance of the Guatemalan Moniac—and so also to its contemporary re-creation as the symbol of an alternative to the very real political, economic, and social miscalculations that defined Guatemala and other countries that strayed from the path. The Moniac, in this incarnation, stands not for the quest for a fountain of prosperity, but for the abandonment

of that quest. The search for the Moniac turns out to be the key not to understanding the economic vision of a lost revolution, but to understanding the ways in which that vision was liquidated.

NOTE

1. Michael Taussig, *The Magic of the State* (Routledge, New York, 1997), p. 138.

Below: Reverse of the one-quetzal bill showing the Central Bank of Guatemala.

