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How a Tokyo Earthquake Could Devastate Wall Street and the World Economy

BY MICHAEL LEWIS

IN DUSTY LIBRARIES YOU CAN STILL FIND THE odd copy of a fat black book published by the Japan Bureau of Social Affairs in 1926, a memento of the earthquake that leveled Tokyo at 11:58 a.m. on September 1, 1923, known as the Great

Kanto Earthquake. Crackling descriptions of the physical trauma are punctuated by black-and-white photos of total destruction. The initial shock of roughly 7.9 on the Richter scale demolished every seismograph but one. It buckled railroad tracks into roller coasters and fissured the earth like a lady's nylon. The first, main shock was followed by two more shocks, then a quiver of 171 aftershocks. Within a few seconds, the tide raced out

of Tokyo Bay and tidal waves raced back in, destroying the entire coastline. Within minutes, Tokyo itself was a chaos of bursting power lines, gas pipes, sewage channels, and water mains. Within hours, acres of buildings in the heart of the city had burned to ash.

All roads and communications were severed. Four hundred of the emperor's carrier pigeons—"gallant feathered messengers," the report calls them—were pressed into service (the emperor himself stayed out of town, discreetly insane). In the end, no one was safe, not even bankers. The stock market crashed, hundreds of banks failed, and the insurance industry was saved only by government intervention. And so it was that an act of God marked the end of Japan's first Economic Miracle (1867-1923), though they didn't call the era that back then and didn't realize it until later.



The '23 quake fissured roads sixty miles away.

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What's absent from the government's report is any remotely plausible sign of humanity. It tells of sixty thousand people who sought safety in the open ground of Hongo Park and were burned alive by a cyclone of fire that swept over them; of a city in ruins; of a population maimed; of treasures lost. Yet through it all the Japanese people stand silently stoic, like mannequins. Prince Regent Hirohito enters and exits the wreckage astride a horse while straight-backed soldiers in clean uniforms salute crisply.

There's something vaguely unreal about the stiff upper lip of the Japanese people as scripted by the government's Department of Drama. I learned the extent of the fiction when I met in Tokyo an eighty-two-year-old man who had lived through the event. His mother was British and his father Japanese (a count, no less). In 1923 this man, a sixteen-year-old boy, lived beside Tokyo Bay.

"You have no idea," he says. "When it hit, all you could do was crawl for safety, like an animal. A dog. Our house collapsed, then the tidal wave swept away the pieces. I watched this from my knees. The first thing you felt was anger. Humiliation. Why does this happen to me? The Japanese felt it. I

The fate of foreigners is intertwined with Tokyo's, and no foreigners are more exposed than New Yorkers

think, more than I. That's why they needed a scapegoat for the disaster. Thousands of Koreans were accused of arson and lynched. Westerners were let alone, but the word spread that the earthquake was no natural disaster; that a Western power had built an earthquake machine and aimed it at Tokyo. When the next one comes, I won't survive."

Neither may we. And that's what's harrowing about the thought of another great quake rocking Tokyo. The disaster of 1923 meant little outside Japan. Tokyo then occupied a tiny niche in the world economy. Tokyo now, were it a nation unto itself, would have a GNP of \$730 billion, greater than Great Britain's. The entire labyrinthine Japanese government is in Tokyo. Twelve million people live in Tokyo narrowly defined. Thirty million Japanese live in the larger area that is the earthquake zone; 25 percent of the nation's population is vacuum-packed into the most treacherous 3.6 percent of the nation's land. Two-thirds of Japan's businesses worth more than 5 billion yen (\$40 million) are headquartered in Tokyo. One-third of everything sold in Japan is sold in Tokyo.

The ports of Tokyo and neighboring Yokohama together export much of the chopsticks, computers, electrical appliances, machine tools, cameras, cars, and assorted gadgets that have created Japan's \$100 billion annual trade surplus. The mathematical consequence of the trade surplus over the past decade are the hundreds of billions of dollars, pounds, francs, and marks now controlled by Japan's banks, insurance companies, and trust funds. These are all headquartered in Tokyo. The branches of the world's eight largest banks, which feed funds to the world, are completely dependent, in an almost feudal way, on their head offices in Tokyo. Their cash affects us all. In other words, the fate of the average foreigner is intertwined with Tokyo's more than ever before, and more and more every day. And, as we shall see, no foreigners are more exposed than New Yorkers.

Whether or not the Japanese fully appreciate the degree to which the rest of the world is implicated, they aren't oblivious of the risks they run. The city's gas mains and bullet trains are neatly programmed to cut off at the first whisper of seismic activity. Each year the four prefectures in the earthquake zone—Tokyo, Chiba, Saitama, and Kanagawa—hold mock, serious earthquake drills that make everyone involved giggle. But it's hard to tell to what extent the extra precautions taken by the Japanese government have offset the incredible folly of situating the city most critical to the world economy (name another if you disagree) atop a ticking bomb.

EARTHQUAKES FALL INTO TWO TYPES: THOSE THAT occur along the boundaries of the earth's "plates"—mobile slabs of rocks constantly grinding against one another—and those that occur anywhere else. The San Andreas Fault in California, for example, marks the border of two plates. Earthquakes of the California variety are relatively well understood. Geologists are at least willing to hazard guesses about when interplate quakes might strike. Earthquakes that occur away from plate borders—so-called intraplate quakes—are far more mysterious. Tokyo lies over the intersection of four of the earth's twelve or so major plates and so runs the highest risk in the world of a California-style quake. But it is also plagued by the second, more random, type of earthquake. The disaster of 1923 was of the second type, one of an eerie pattern of massive intraplate quakes that have devastated Tokyo roughly every seventy years going back nearly four centuries: 1923, 1853, 1782, 1703, 1633.

"A catastrophic earthquake could happen any time," says Kiyoo Mogi, head of Tokyo University's Earthquake Research Institute. "I think the people don't know because there hasn't been a big earthquake since 1923. People are accustomed to the resting period."

The obvious response to Japan's earthquake problem would be simply to move the Japanese government to another city. The Japanese discuss the subject frequently without, however, any real intention of taking action. Time and again on a reconnaissance mission this spring to Tokyo, I watched Japanese policy makers acknowledge that the great quake might soon strike again, then wave a passive hand at it. They seemed already to have decided that the concentration of power in Tokyo is necessary to manage Japan's aggressive economic policy.

It is the single-minded pursuit of trade surpluses, coupled with the belief that to generate surpluses the levers of power must remain within the collective reach of bureaucrats, that has led to the crushing concentration of economic life in Tokyo. In practice this means that the Japanese government systematically rigs domestic prices to give Japanese companies the strength to wage price wars overseas (it's no accident that Japanese goods are cheaper outside Japan than in). To fix prices at home, however, the bureaucrats require the heads of the relevant companies, their shareholders, and their bankers to be close at hand. Ergo, Tokyo mushrooms.

Risking Japanese lives for the sake of global economic domination is not high on the list of subjects that the bureaucrats who oversee the Japanese economy like to discuss with Western journalists. That, I think, is why I met with constant stonewalling in trying to ask Japanese officials about earthquakes. When I suggested they were avoiding me because they had no one versed on the subject, they bridled. They said they had "earthquake plans." As long as "plans had been made," it didn't seem to matter whether they were the right plans, or indeed, even sensible. Not surprisingly, a lot of them aren't.

Consider, for example, the relaxing of Tokyo's formerly strict building codes, which, until 1981, restricted buildings higher than sixty meters. Living, as I did, through even a tiny earthquake on the thirty-first floor of a hotel focuses the mind wonderfully on construction standards. In the event, my hotel, the Imperial, rocked back and forth; the man on night duty

who answered my panicked call said that this was a good sign. Still, I wondered what would happen in a genuine disaster. I counted forty buildings higher than my hotel room. Japanese builders have responded to rocketing land prices by going higher and higher. I discovered that a lot of the skyscrapers in Tokyo have been built by the Kajima Corporation. I signed up for one of their press tours.

The tour began, appropriately, in the dark. The twenty or so Western journalists were shown a movie, to excite us about Kajima. Aside from an eerie scene in which a thousand Kajima workers in yellow space suits throw up their hands and shout "Banzai!" the film was a succession of swaying skyscrapers. Buildings struck by earthquakes don't merely bounce up and down, as I had thought, but swing elliptically. The response to a shock from below is complex, and it only becomes more complex the bigger the quake.

When the lights flickered back on, six Kajima men stretched out along a table to face us, and the result was typical of what happens when Western journalists meet Japanese spokesmen. It reminded me of a tug of war on an ice rink. The Kajima men didn't speak English, and the journalists, for the most part, didn't speak Japanese. The head man kicked off. His words passed through a lady translator. American companies lagged far behind Kajima, he (or rather, she) said. Kajima was the leader in fifth-generation earthquake engineering. And so on.

A journalist had the gall to ask if there were any danger that a Kajima building might collapse in a big quake.

"All of the buildings of Kajima Corporation are earthquakeproof," said the head man, through the woman.

Another journalist raised her hand. "If the first-generation technology was earthquakeproof," she asked, "why bother with the new technologies?"

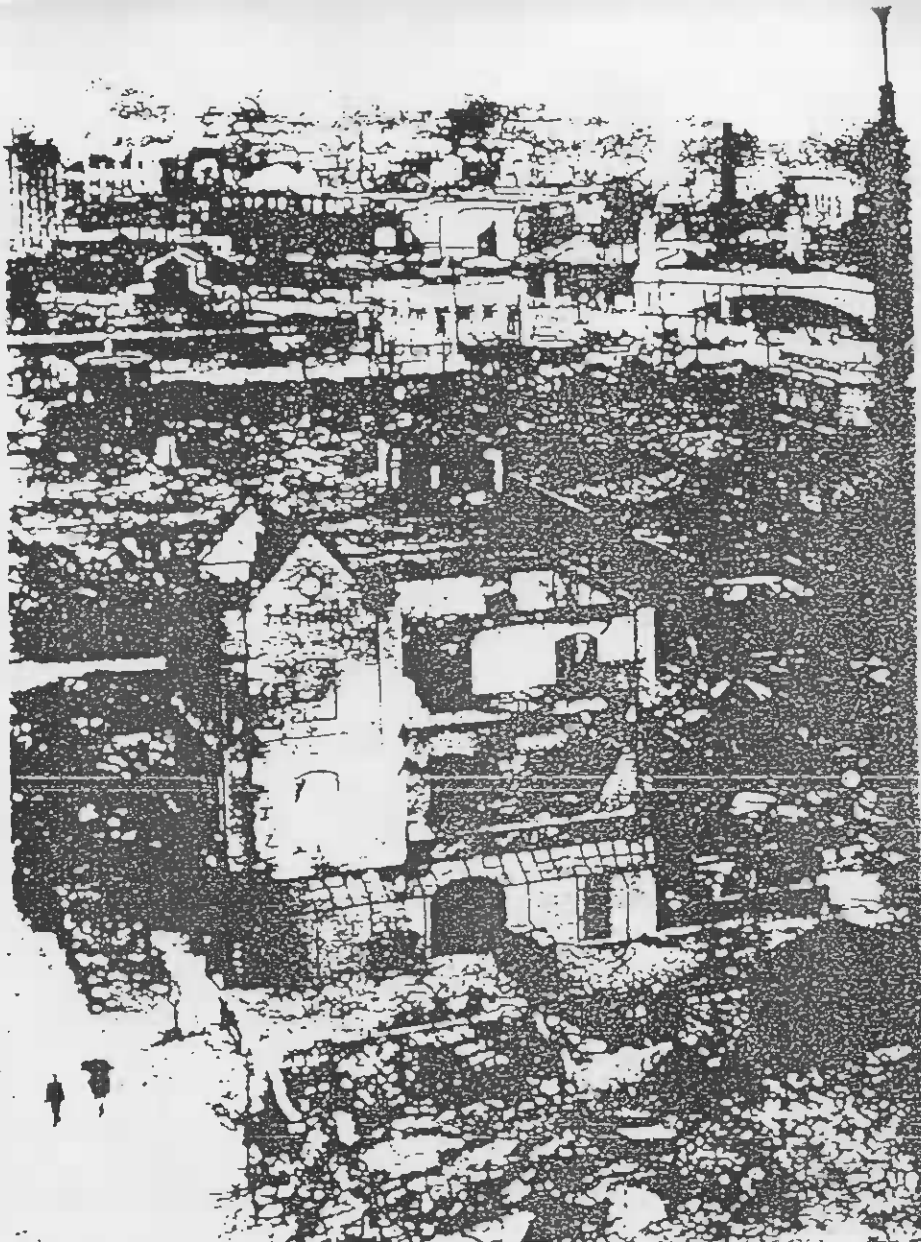
"He doesn't understand your question," said the translator and tried to move on.

But the American journalist persevered. "I still don't understand. . . . How can you say a building is completely earthquakeproof at the same time you are looking for technologies to improve its resistance to quakes? . . . How are the new technologies better? What was wrong with the old ones?"

At this, indulgent smiles broke out. "Yes," said the translator, "he agrees the new technologies are even better."

The technology in question is called an Active Mass Driver. It consists of sensors placed on each floor of a skyscraper to detect vibrations. They feed their data into a central computer. The computer keeps the building standing. This it does by throwing around weights to offset the shocks on each floor. The weights, in a sense, grapple with the earth. They move at 132 feet per second against the grain of a quake. I was inclined to believe that anything called an Active Mass Driver does whatever Kajima wants it to. After all, they were already using the technology in downtown Tokyo. But then they showed us how they had tested it.

The Active Mass Driver, it turned out, had never coped with



The death toll was over one hundred thousand in 1923, when Tokyo

anything greater than a medium-sized quake in simulations. It was confused by the complex shocks to a building from a massive earthquake. The system might mistakenly throw the weights in the *wrong* direction, adding to the effects of a really big quake. In view of this, Kajima decided to program the computer to turn itself off in the event of a major quake.

Moving from the buildings to their contents, consider the state of earthquake preparedness of the Tokyo Stock Exchange. The TSE computer is housed in a Tokyo neighborhood that was completely destroyed in 1923. I asked a panel of four TSE officials what would happen if their computer were lost in a major earthquake. "Ha," said the spokesman for the group, as if he had caught me flat-footed, "we have a backup computer."

"Where?" I asked.

"Next to the main computer."

Sure enough, as easy as it would be to store a spare copy of TSE records outside of Tokyo, there are *no* official records of ownership outside of that one building.

The political imperative of a centralized economy is clearly the reason Tokyo is allowed to grow and grow. But that doesn't fully explain the negligence I found. For *that* it's probably



kyo was a much smaller city and occupied a tiny niche in the world economy.

A big quake has
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1923, 1853, 1782,
1703, 1633

THE JAPANESE GOVERNMENT'S profound willingness to risk a holocaust is mixed with a (to Western eyes) shallower desire to maintain appearances. Several years ago, for example, the government passed an Earthquake Countermeasures Act. Under the act, when geologists predict that the great quake is about to hit, committees of bureaucrats automatically meet to confront the impending disaster. But as yet, Japanese geologists refuse to make predictions, feeling that the small probability of being right doesn't justify repeatedly alarming the population.

However, I found a Japanese geologist willing to make a different sort of prediction. In December of last year, sixty-five years after the last great Tokyo earthquake, a man in a Japanese ministry produced the government's first earthquake study. The picture it sketches is grim. And it has gone largely ignored within Japan.

The man in charge of the report is a young geologist at the National Land Agency named Hideaki Oda. We met in his makeshift conference room. Despite

necessary to dig a bit deeper—till one strikes the strange (to us) Japanese attitude toward catastrophe. The idea of their city in ruins simply doesn't disturb Tokyoites the way it would New Yorkers, partly because it has happened so many times before, but also because the Japanese fully expect to rebuild. Some Japanese shrines, for example, are as a matter of policy destroyed and replaced every twenty years.

In her classic postwar study of Japanese society, *The Chrysanthemum and the Sword*, Ruth Benedict wrote, "No matter what the catastrophe, whether it was civilian bombing or defeat at Saipan or their failure to defend the Philippines, the Japanese line to their people was that this was foreknown and that there was therefore nothing to worry about. The radio went to great lengths, obviously counting on the reassurance it gave to the Japanese people to be told that they were living still in a thoroughly known world. . . . Japanese reassurances are based rather on a way of life that is planned and charted beforehand and where the greatest threat comes from the unforeseen."

The implicit corollary is that a catastrophe is acceptable as long as it can be said to have been foreseen. No problem there. *Everyone* in Tokyo knows there's going to be a big earthquake. It's only a matter of when.

Tokyo's astronomical land prices, anyone within earshot of real power commands a room the size of a basketball court in which to host those famous consensus-building sessions. If you want to measure a Japanese man's clout, get him to show you his conference room. Oda had only a short black couch and a card table in the corner of his open-plan office. That office consisted of fifty or so metal desks piled high with papers, a hundred or so metal file cabinets upchucking more papers, and a few thousand square feet of linoleum littered with even more papers: the earthquake appeared already to have struck.

Oda spread out a series of maps of the city showing the effects of the next great quake, occurring at different times of the day and under different weather conditions. In each case, the greater Tokyo area was coated in dark red splashes (indicating damage) with the exception of a small circle of white. We were now sitting in that circle; it was the district that contains both the Japanese government and the Imperial Palace. These stand on a high rock about three miles from Tokyo Bay. Rock, Oda explained, is what you want to be standing on during a quake. He allowed himself a little giggle and said, "Only the government people will survive." That, he said, is why the government isn't worried.

Oda is not an alarmist. He just has an unusually good sense of humor. What is remarkable about his study is that it respects all of Japan's sacred cows—that the rock core of the city won't be much affected, that people will respond as humanely and efficiently as they do in government reports, that no important officials will perish, that skyscrapers will stand—and still it predicts Armageddon.

Many of Tokyo's citizens, like Holland's, live on unstable land that has been reclaimed from the sea. Neon signs are everywhere. So are bulk-chemical factories. Even if the skyscrapers don't fall, they've created new hazards by jamming people into perilously close quarters. And that brings us to Oda's central point: there are many dangers in Tokyo today that didn't exist in 1923. As one metaphor-friendly Japanese put it to me, Tokyo in 1923 was an abacus; today it is a supercomputer. It is dependent on automation and on sensitive technology. Bust an abacus, you can repair it in a day. Bust a supercomputer, it's broken for months. That will, of course, have an enormous effect on the world of money, which is completely dependent on high-tech communications. But on the subject of money, this Oda, like his government, is mute: "In the future we will discuss the problem of economic consequences."

That may not be necessary. Another Oda, Kōrō Oda, a young economist at the Tokai Bank in Nagoya, three hours south of Tokyo by bullet train, took the numbers from the National Land Agency and recently completed the first study of the global economic consequences of the next great Tokyo earthquake. I asked to see Oda's conference room, in order to place him on the nation's organization chart I was keeping in my head. It sat only four people comfortably. Why, I asked him, does a man with only a humble four-seater to his name make such bold (and risky) predictions? Well, he said after a pause, the Tokai Bank stands to gain if the Japanese capital is moved, because Nagoya is at the top of the list of places where it might move to. A second reason emerged later. This Oda, like the first, was genuinely enthralled by his subject. He was quirky, alive, and prone to idle speculation and imaginative drifting in a way Japanese businessmen and bureaucrats, who often seem to live in mortal fear of failure, seldom are.

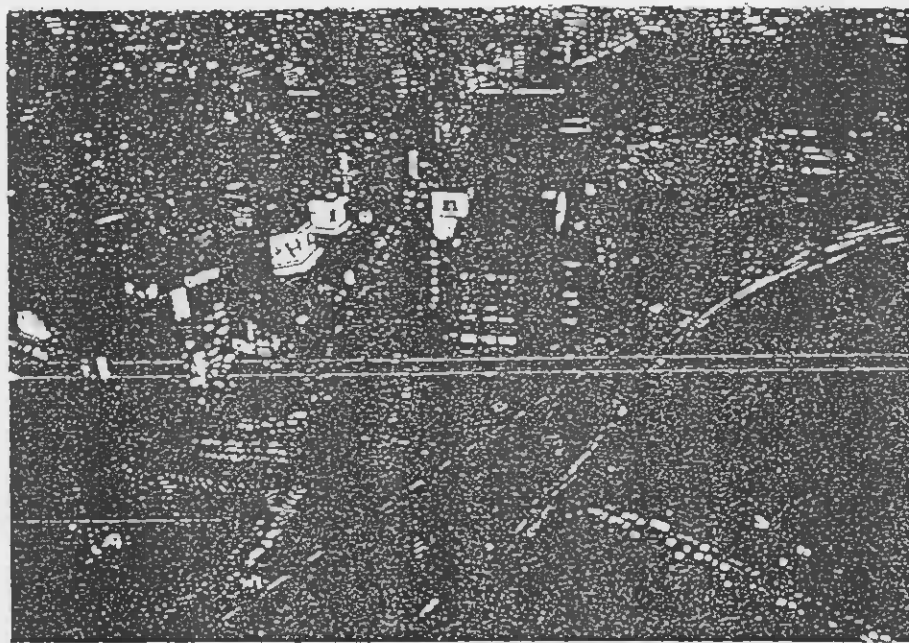
The spade-work of the Odas (cross-checked against the judgment of other experts) enables us to travel into the future. We can reflect on the Great Tokyo Earthquake of September 1, 1923, as if, in early 1990, a reporter had traveled around the world to compile a short history of the disaster and its financial consequences for the readers of a magazine like *Manhattan, Inc.*



THE FIRST BIG SHOCK OF 7.9 ON THE RICHTER scale struck Tokyo at 11:58 a.m., precisely sixty-six years after the earthquake of 1923. Tokyo's gas mains and bullet trains shut down, and its government offices stood, more or less, intact. But someone forgot to tell the people they were meant to be stoic.

Men working in the city wanted to know what had become of their families. First by car and then on foot, they raced out of central Tokyo. In an exclusive interview with *Manhattan, Inc.*, a senior official of the Ministry of Finance recalled, "I remember

Only the government people will survive, Oda giggled. That, he said, is why the government isn't worried



Today, 30 million call the earthquake zone home.

that, after the first blast shattered the glass, nothing stood between my ground-floor office and the open air. From beneath my desk (I was no hero) I watched a moving tangle of legs. Men running. Men falling. Men bleeding. Men fighting."

From the air, Tokyo looked like an angry ant colony, stepped on, then ignited. One hundred and fifty-two thousand people were killed, mostly by fire—about six times the number in Armenia two years ago. Black humor has it that Japanese earthquakes discriminate against the poor (whose houses suffered most) but that fires are brutally egalitarian (several leaders of Japan's ruling Liberal Democratic Party and at least two bank presidents are known to have perished by fire). Two hundred and five thousand people were injured. Most survivors were homeless. What is remarkable is that the numbers were precisely those predicted by Hideaki Oda of the National Land Agency, who has come to be seen as a kind of prophet.

By noon, two minutes after the first shock, eight hundred thousand buildings (10 percent of the total) had collapsed. A phenomenon unique to earthquakes called liquefaction, in which soft ground turns to Jell-O, jostled 41 percent of the soil near Tokyo Bay. Several chemical factories in the area exploded. It is now agreed that is where many of the fires began.

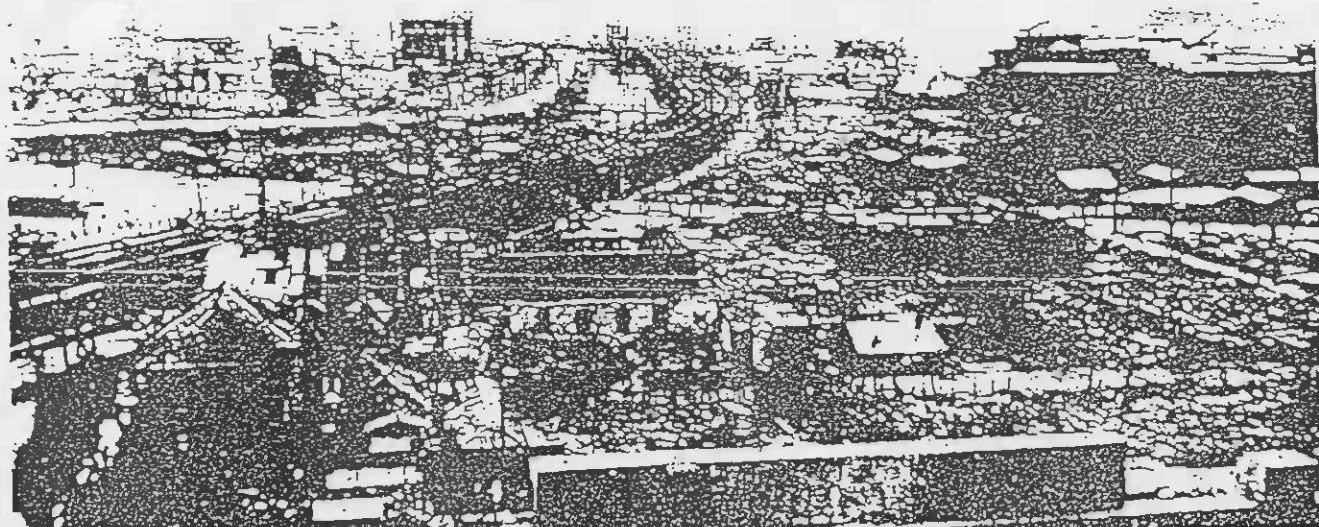
Most men worked in glass and steel. But they lived, as ever, in wood. Of Tokyo's 8.5 million structures, 7.25 million were wooden. Of these, 2.57 million burned to the ground; 3.75 million were badly damaged. The fires burned for days, until they ran out of fuel. The ability to fight them was all but lost. Fire trucks stuck in fissures or behind walls of automobiles. Japanese leaders have claimed car accidents were the sole rea-

son for serious fire damage, but this is seen by Western observers as a spurious rationalization by politicians who wish to rebuild the capital in Tokyo. The truth is Tokyo has always been blocked solid with traffic.

The greatest irony of the event, in retrospect, was that the last thing anyone thought about on September 1 was money. Throughout that first day Western politicians voiced their sympathy. Everyone agreed that earthquakes were a bad thing. Not everyone could agree, however, on what to do when they occurred in a rich country like Japan. Gorbachev merely sent condolences, the idea of the Soviet Union giving economic aid to Japan being simply too ludicrous. The United States

blips in the main computer of the TSE, an antiquated Hitachi. The machine, and hence billions of dollars of Japanese stocks, stood in a building near Nihonbashi, an area gutted by fire. Several vaults holding the shares themselves, also in Nihonbashi, were lost as well.

During the crash of October 1987, the New York Stock Exchange computer lost a file of records. New York, however, had a genuine backup. The slips that the NYSE computer automatically sends to brokers became Black Monday's official records. The Japanese lacked adequate technology because the Ministry of International Trade and Industry (MITI) had forbidden the Tokyo Stock Exchange to buy an American computer, and



Frank Lloyd Wright prided himself on the survival of his just-opened Imperial Hotel (distant upper right).

shipped emergency supplies of rice, among the first American rice ever allowed on Japanese soil. As ports and roads no longer existed, the rice was airlifted from the ships by helicopter.

The shortage of reliable news has been given as the reason for the indecisive Western response to the event. All the journalists on the Pacific Rim chartered boats to take them to Tokyo, only to find when they arrived that they needed boats to ship their copy out. More than a third of Tokyo's telephones and almost half of its electricity hubs were wiped out. The Tokyo telephone network closed for a month and did not fully recover for nearly four months. The prodigious Hideaki Oda had foreseen this as well, basing his forecast on a single incident. In November 1984 a fire swept through the communications cables in Tokyo's Setiyama ward. It took eight days for normal phone services to be restored. This time there was damage not only to the entire system but to the repairmen and to their company. As a result, the Great Tokyo Earthquake of 1989 is a case study of the enormous consequences of lacking information in the information age.

This loss alone would have been enough to close Tokyo's financial markets. But the Japanese suffered another setback. The official records of share ownership vanished. No one had a clue who owned what. Half of the world's stock market capitalization trades on the Tokyo Stock Exchange (compared to 25 percent in New York). Despite its size, the market in Japan has been quaintly primitive. Computers play a much smaller role than in New York. Shares are pieces of paper physically delivered by the seller to the buyer three days after a transaction. Until delivery, the official records of ownership are (or were)

American computers are the only ones that do the job properly. Black Friday, as the day of the quake is now called, was a bleak one for Hitachi's public relations department. In short, because of Japan's economic policies, the TSE was in complete disarray. The confusion, coupled with the communications failure, provided the Ministry of Finance with an airtight alibi for closing Japan's stock markets. Oddly enough, though for different reasons, this too had been predicted in late 1988, by Kaoru Oda of Nagoya's Tokai Bank.

IN THE CANYONS OF WALL STREET, THE BACK ALLEYS OF the city of London and other financial centers, many people shook their heads and said how sad it was. But only poor people and poets gave the human loss their undivided attention. Rich men's emotions were fully invested in their portfolios. If you owned shares in Japanese companies, your first reaction was to sell them. But where? When the quake struck it was 11 p.m. on Thursday in New York. Traders and investors received news of it on their home televisions. There was nothing for them to do but wait until the London markets opened five hours later.

Nothing jolts the city of London out of its sleepy mornings and long lunches like a good disaster in the middle of the night. The city then makes all those decisions that would normally be made hours later in Manhattan but that all of a sudden cannot wait. By 7 a.m. on Friday September 1, fantastic volumes of yen and Japanese shares were changing hands in London. Buyers quickly lost their appetites, however. The only strong sector seemed to be construction stocks; shares in a construction

company called Kujima soared. The yen and other Japanese shares were sinking fast.

Western speculators, having sold short Japan's shares and currency, wanted to be reassured. By noon (by which time all of Wall Street was on the phone) they were frantic. They craved information. Had Sony's headquarters survived? How about its famous chairman? What was Sony's new value? But since news leaked out of Tokyo slower than ketchup from a bottle, estimating damages was impossible. There was only one place to turn: the Tokai Bank report of December 1988. The report was hungrily fixated about Wall Street and elsewhere and assumed to be the next-best thing to being in Tokyo. The report explained how the loss to Japan's capital stock would come to 80 trillion yen (\$670 billion) and that the replacement cost would be 119 trillion yen (\$991 billion). These were not bad guesses. The actual loss seems to have been the equivalent of \$1.3 trillion.

Upon reading the Tokai Bank report, there was, in retrospect, one question that every foreign-exchange trader, every bond trader, every equity trader, and indeed anyone with money to invest, should have asked. From where would the \$1 trillion to repair Tokyo come?

The economic world is a web; subtract one filament and the whole is weakened. Along with the yen, shares of most Western insurance companies collapsed. American International Group, for example, one of the largest insurance holding companies, was down 25 percent, with no buyers in sight. Japanese bureaucrats had seen to it that Japanese fire-and-earthquake insurance migrated overseas: to Australia, to Lloyds in London, to New York. Foreign insurance companies had been delighted to suck up as much Japanese risk as they could. Japan was seen as a prudent, orderly, risk-averse society. Insurers forgot that, though the Japanese were loath to take small risks, they had embraced the biggest risk of all.

On Saturday there was the inevitable speculation that the group of seven (minus Japan, of course) would temporarily close world stock markets. The lead story of Sunday's *New York Times*, however, laid that theory to rest. It contained the following words from U.S. Treasury Secretary Nicholas Brady: "The lesson of the crash of 1987 is not that markets should be closed in times of crisis. Closing stock markets causes more problems—by feeding panic and so on—than it solves. The lesson of the crash of 1987 is that a few investment firms, by program trading, can create undesirable distortions in the stock market. This administration has spoken with the heads of the larger firms that still engage in program trading, and we have agreed that they will suspend their activities."

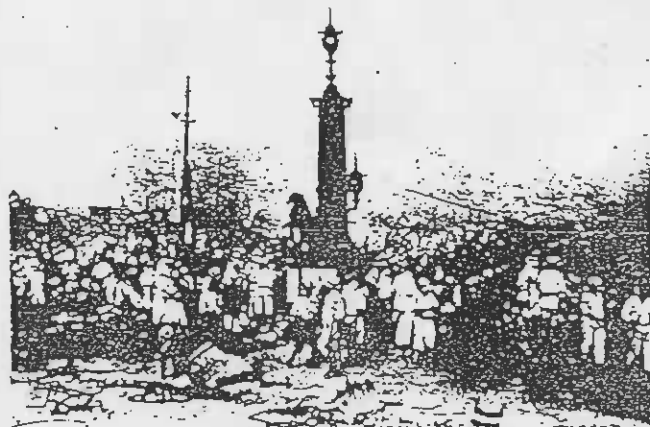
On Monday September 4, the stock markets collapsed. It happened as follows. Western insurance companies made public their exposure to Japan. The numbers exceeded market expectations by tens of billions of dollars. Insurance shares, of course, fell further. But they dragged others with them. The insurance companies hadn't nearly enough money invested in Japan to cover their losses. They were forced to liquidate their holdings of American, British, French, German, Italian, and Australian stocks and bonds. The very thought drove the markets down. Speculators piled in, selling short in anticipation of the event. Panicky investors and strapped arbitrageurs sold, too. In fact, the Dow Jones Industrial Average nose-dived 220 points even before insurance companies began selling.

Meanwhile, the silence from Japan was deafening. Day after day the biggest news was that no Japanese had bought or sold. Up to September 1989, the Japanese had left footprints in the markets; but one never actually saw them. One surmised that they had been buying U.S. Treasury bonds because the U.S. Treasury-bond market had leapt. But one never actually *knew*. On September 15, all this changed. The first Japanese twitch came in New York. Salomon Brothers, Goldman Sachs, and other brokerage firms were inundated with calls from senior Japanese bankers and brokers, all asking frightening questions:

Please, could you give me your bid on \$1 billion worth of Treasury bonds? Please, could you give me your bid on 3 million shares of General Motors? Please could . . . When the Japanese finally emerged, flexing aching muscles, the world changed forever: they wanted their money back!

Not surprisingly, they have been blamed for neglecting our interests. But Japan's minister of finance had a point when he wondered aloud whether the West would have shown Japan any greater consideration were the shoe on the other foot. If 30 million Americans wanted to withdraw their savings from the bank to replace their homes and chattels, would our politicians have had the will to refuse? No Japanese government could deny its people their wealth. Before the disaster Japan's bankers had agreed among themselves that if ever the truly massive quake hit, a limit of one hundred thousand yen per person in deposit withdrawals would be imposed. But that was merely to

When the Japanese emerge
from the rubble, the world will
change forever: they'll
want their money back!



Ruins of the Nihonbashi Bridge, from which all distances in eastern Japan are calculated.

ride them over until the Bank of Japan reopened and injected funds. This it did on September 15.

On that day, all became clear, or rather, confused in a new way. The \$1.3 trillion the Japanese required to rebuild Tokyo was to come mainly from New York and London. From their point of view, foreign liquid assets were slack, their national nest egg. The rest of the world, however, depended on them. And from September 15, 1989, the price of everything in the world that could be traded quickly—stocks, bonds, currencies, commodities—was driven by this single enormous movement of Japanese assets. Ten years of chits were called in at once.

The banks weren't the only channel through which Japanese money came home to roost. Japanese life-insurance companies helped, too. They held something like \$200 billion of foreign investments. By law the life-insurance companies were not required to pay on deaths caused by earthquakes. But in Japan the law often comes second—in 1923 the insurance companies were ordered to pay money they didn't owe. In a crisis no

Japanese company is really private: the insurance companies have been effectively nationalized. They have been told to pay whatever they can without depleting their domestic-securities portfolios. It is their peculiar charm that they don't argue.

The world stock markets (except, of course, for Japan's, which was closed) went into a free-fall. But this crash looked nothing like October 1987. It was worse. To the Federal Reserve, the sudden absence of Japanese money resembled a mimocollapse of the banking system; our biggest lenders simply disappeared. To the collapse of the stock market was added the collapse of the bond market, which meant that interest rates rose dramatically; Japan was selling her foreign shares. Japan was selling her U.S. Treasury bonds. Japan was selling her platinum. Japan was bidding up the price of oil. All the seemingly hysterical reports were true. But what was more important, in retrospect, was what Japan was not doing.

money borrowed from Japanese banks against inflated Tokyo real estate. The higher the value of real estate in Tokyo, the more big Japanese real estate companies could borrow to buy high rises in Manhattan. A single Japanese company, Mitsubishi Estate, owned outright \$300 billion worth of land in downtown Tokyo. It could, in theory, have borrowed against the land to buy most of London. The Japanese were, therefore, the plug in the international real estate market. The earthquake pulled the plug. When the value of Tokyo land crashed and the Ministry of Finance insisted that bank loans go only for domestic rebuilding, the Japanese banks ceased to indulge Japanese buyers of foreign real estate.

On September 23 the Bank of Japan further announced that, to encourage rebuilding, Japanese people and firms would be permitted loans at 1 percent interest. Japanese optimistically queued to retrieve money that represented not only their past



Two-thirds of Japan's businesses are headquartered in Tokyo, and one-third of everything sold in Japan is sold in a city that sprawls over the intersection of four of the world's dozen or so major fault lines.

AT THE END OF 1986 JAPANESE BANKS HAD \$1.02 trillion in outstanding loans to foreign countries. Earlier in 1989, eleven Japanese banks together had lent roughly half of the \$25 billion used by Henry Kravis to buy RJR Nabisco. For a week after the great quake, Japanese banks worldwide, lacking instructions from Tokyo, were paralyzed. They ceased to lend altogether. The banks revived when communications with their head offices were restored, but by the end of 1989 Japan's Ministry of Finance was said to have a "no-loan policy" toward Western companies. Japan has ceased to supply funds to Henry Kravis, and Henry Kravis has ceased to make leveraged buyouts.

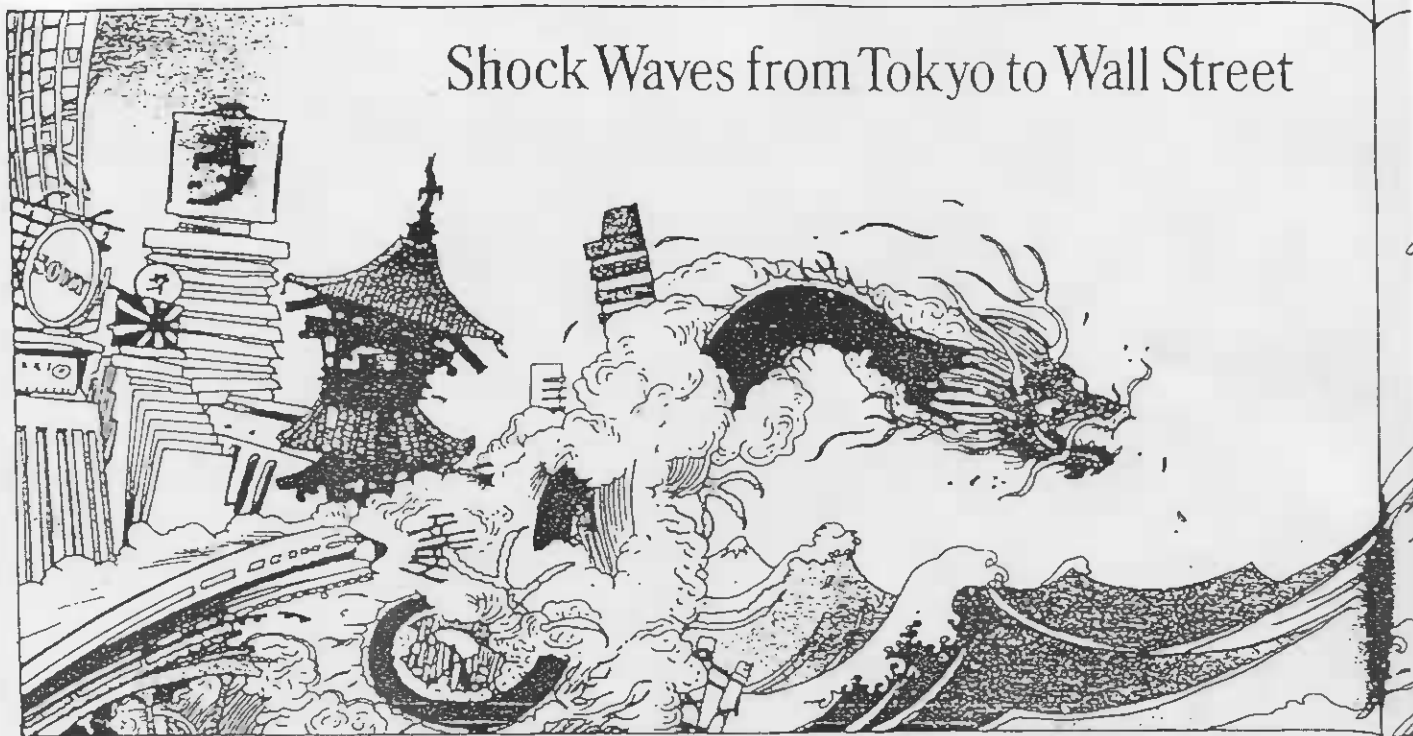
In 1987 New York City developers had feared that a glut of fifteen thousand new condominiums would depress real estate prices. That fear proved groundless only because Japanese buyers mopped up the surplus. After late September, Japan ceased to buy Western property. They had always paid with

surpluses but future ones too. The money appears to be rebuilding Tokyo in better condition than it was before. Toyota, for example, although it has plenty of cash of its own, borrowed to build a new plant to meet the brisk domestic demand for its cars.

IMPORT NOW, said the push carts at Tokyo's Narita airport (in English) before they melted in the fires. Since the earthquake, Japan's bureaucrats have ceased this sort of crafty posturing, not because they've found religion, but because it's no longer necessary. They have no choice but to buy imports. Overnight they have become a nation of consumers—the disaster has spurred fantastic demand, especially for housing and factory equipment. (The Tokai Bank's Oda had predicted that Japan's postquake growth rate would be 12 percent in 1990 and 10 percent in 1991.)

What is more, the Japanese export machine has spluttered. Toyotas, Sony Walkmen, VCRs, and Camcorders are flowing again from Japan, but not in the same quantities as before.

Shock Waves from Tokyo to Wall Street



SHOCK ONE

An earthquake destroys Tokyo, including the stock exchange and all records of transactions. Abroad, Japanese shares and the yen nose-dive.

SHOCK TWO

Foreign exchanges collapse as Western insurance companies begin dumping stocks and bonds to cover Japanese claims.

SHOCK THREE

Japan starts to liquidate its overseas holdings in order to finance the rebuilding of Tokyo.

partly because production lines have been severed, partly because the Yokohama and Tokyo ports were half-swallowed by tidal waves, partly because many workers were killed, and partly because 30 million surviving Tokyoites want new autos and VCRs for themselves. General Motors, Phillips, and other companies that make near substitutes for Japanese goods are beginning once again to dominate their home markets. Oda had predicted that Japan would run a trade deficit for the next five years, and the evidence thus far is that he was right. From a surplus of \$85 billion in 1987, Japan will fall into an annual deficit as great as \$11 billion—leaving no spare funds to invest in U.S. Treasury bonds.

The sudden scarcity of money abroad has been the most dramatic effect of the destruction of Tokyo. In Washington, the chairman of the Fed, Alan Greenspan, lay awake in his bed until the wee hours each September morning. He occasionally padded to the fridge for a glass of milk to settle his stomach. If he had read the Tokai Bank report, he would have seen that Oda had forecast a big rise in U.S. and European interest rates and had predicted that rates would remain high for three years after the quake. Following the disaster (which to central bankers was not the earthquake but the withdrawal of Japanese money from their respective countries), the entire West faced the same problem, only Greenspan's was extreme. America depended far more heavily on Japan than did Europe.

Inflating the money supply doesn't come naturally to Alan Greenspan, who is almost phobic about inflation. He has apparently decided to ignore the very real danger of depression and simply let nature take its course. The small amounts of money he has injected into the banking system have had no effect on the credibility of Oda in Tokyo. As Oda foresaw, interest rates have risen by 5 percent.

Five percent. The number is more evil than many suppose. Anyone in debt is in trouble. The landscape will soon be littered with unfinished or foreclosed houses. Japan's construction industry is thriving; ours is crippled. America's already

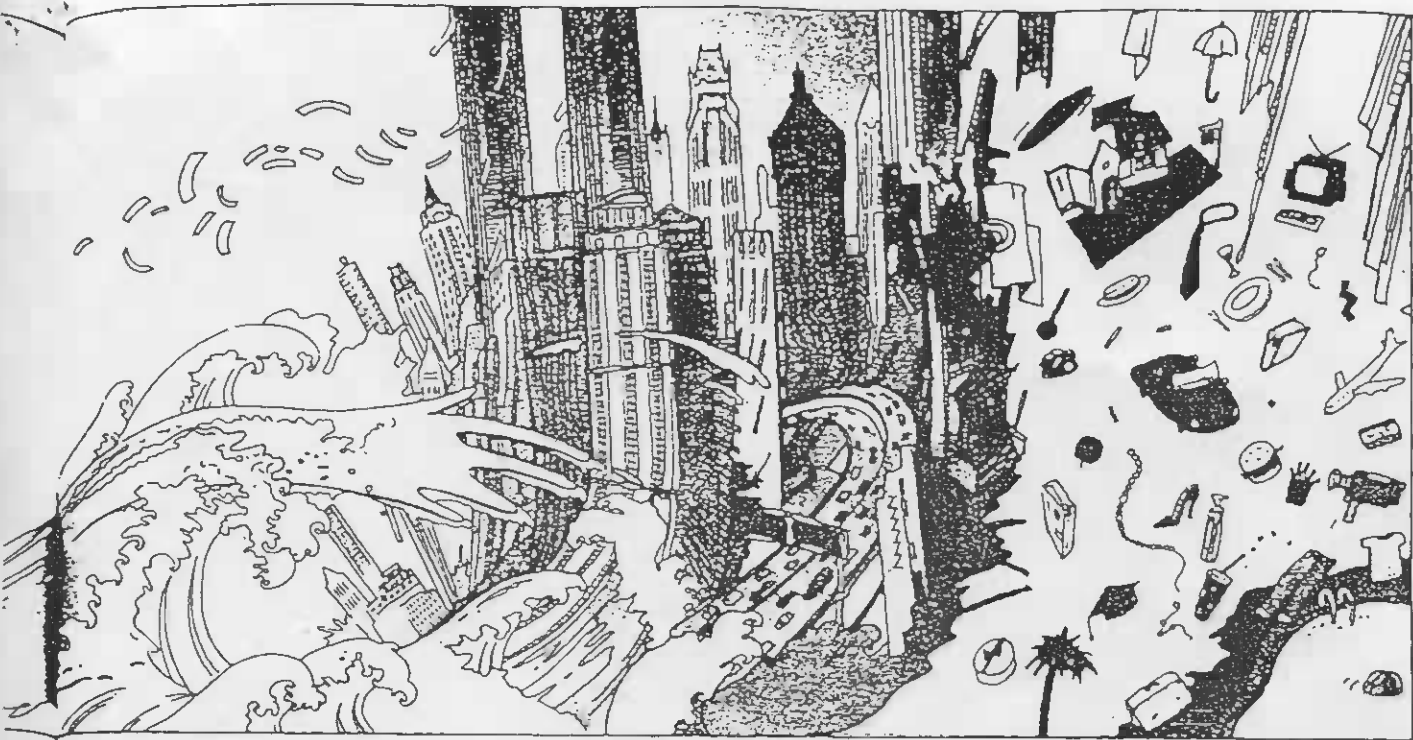
destitute savings-and-loan industry, which holds hundreds of billions of dollars of long-term home mortgages financed by short-term borrowings, looks as naked as a tall Texan in a shrinking suit. The lots of small-town car dealerships are filled with unsold American autos because no one can afford a loan to buy one. Detroit may have won back from the Japanese a bigger share of the American market, but that market is suddenly much smaller.

As the West's leading financial city and hottest property market, New York has suffered by far the most from the earthquake. Water fills the deep holes from which skyscrapers were to have risen. Cobwebs fill unsold condominiums. Despair

Despair will flood the minds of unemployed hod carriers, salesmen, and executives

floods the minds of unemployed hod carriers, salesmen, and executives. Tables are empty in restaurants as are seats on Broadway. The aftershocks have been felt at every level of Manhattan society. William Everage, a forty-one-year-old shoeshine man on Wall Street, sees it this way: "I was doing 125 wing tips a day before Black Monday. I was doing 90 before the earthquake. Now, on a good day, I do 50, and the customers aren't so friendly anymore. The wife and I wanted to take out a loan to buy the new Ford. They went and raised the price of the loan. It seems like the price of everything has gone up except houses. They've gone down."

In Washington the most popular political defense has been



SHOCK FOUR

Withdrawal of Japanese money causes the bond market to collapse and U.S. interest rates to soar.

SHOCK FIVE

High rates raise U.S. consumer and housing prices while depressing real estate development, savings-and-loans, and GNP.

SHOCK SIX

The Tokyo Stock Exchange reopens and rises 4 percent as the West faces years of declining growth.

to redirect criticism toward the Japanese. The more responsible media have seen through this line. "Live by the Yen, Die by the Yen" was the headline of a recent editorial in *The New York Times* that argued that, since successive conservative administrations had been both causal agents and benefactors of the unprecedented expansion of consumer credit, they should suffer when our debts become too onerous to bear.

Subscribers to the *Wall Street Journal* knew the cruellest irony of all. On October 1, 1989, one month after the holocaust, with money pouring back into Japan, the Tokyo Stock Exchange reopened. The wiping out of more than \$1 trillion in assets would have sent most stock markets crashing. But the fate of the Japanese market is not so mundanely decided. It is determined by the flow of money into the market from large Japanese institutions, which in turn is determined by the Ministry of Finance. And that has led to the strangest irony of the disaster: upon reopening, the Tokyo Stock Exchange rose.

What happened was no different from what often occurs in Japan, only a more extreme case. Stocks were "ramped." To ramp a stock, brokers conspire to buy it all. A Nomura broker whispers in his client's ear to buy the stock of Company X. Then Nomura spreads a happy rumor about Company X: Company X is soon to be awarded a big government contract! Nomura buys the stock with the money of its other clients. The stock jumps 10 percent in a day. When the market sees the ramp and hears the rumor, all join in. Someone eventually is left holding the bag, but not Nomura. What the Ministry of Finance did after the earthquake was, in effect, to ramp the entire stock market. It was only a matter of sending out a few carrier pigeons from the ministry's windows to the big Japanese banks, insurance companies, and money funds. Japan, in effect, took itself private, which is what a lot of companies do when the public undervalues them.

And where did the money come from to buy up the shares? Easy. It came from America. And from Britain. And from France. And from Australia. Everywhere but Japan. Two-

thirds of Japan's foreign reserves had returned to answer real needs. The rest came home to answer financial needs. And the mystery of the ramping of the TSE today is that it's still going up; i.e., no one seems to have been left holding the bag. Or at least that is what the Ministry of Finance will tell you. We in the West might disagree.

THE TOKAI BANK REPORT ON THE ECONOMIC CONSEQUENCES of the next huge earthquake is no more than a collection of very educated guesses. It neglects many issues; in particular it does not dwell for long on the microeffects within the real economy. Will companies outside Tokyo leapfrog companies in Tokyo? Oda also didn't bother to consider the political consequences of a massive withdrawal of Japanese capital: Will Japan bashers be elected in the West? Will the safety of Tokyo, in the future, be regarded as too important to be left to the Japanese? Will the end of prosperity signal the end of the West's political drift rightward in the 1980s? Will Tom Wolfe label the new young poor of the 1990s "tremor babies"?

The narrow message from Oda is that the financial consequences of a Tokyo earthquake will be felt primarily outside Japan. It will deal no fundamental blow to the prosperity of Japan. The wealth of the nation, it is assumed, is in the structure of its society. And the nation will recover quickly. As far out as 1994, however, the United States will continue to suffer from a yearly decline of 2.7 percent in the growth rate of its real GNP; the European Community's annual decline will be .3 percent; Latin America's, 13.6 percent.

The broader lesson is that the imbalances in the world's financial markets are a disaster waiting to happen. Today, when foreign journalists stumble into MITI and demand to know what will be done about Japan's trade surpluses, they sometimes get this strange answer: "When the earthquake comes, the trade surplus will go away." The good news from Oda is that it's probably true. The bad news is that we'll wish it wasn't.