

Excerpt from the book:

# The Oracle of Oil: A Maverick Geologist's Quest for a Sustainable Future

By Mason Inman, published by W.W. Norton, April 2016.

*The following is an extract, reprinted with the publisher's permission, from the recent book by Mason Inman about the life of M. K. Hubbert. A review of this book, a short article by its author, and a transcription of an extensive interview by Steve Andrews with Hubbert late in the latter's life, are given elsewhere in this issue. This extract concerns mainly events surrounding the 1973 oil price shock, but also has a very telling section on why Hubbert changed his view on both nuclear and solar energy.*

As the energy crisis in the United States deepened in the fall of 1973, M. King Hubbert continued with his many talks. In a public lecture at Stanford, he argued the nation's problems were just symptoms of longer trends: "Our institutions, our system of accounting, our monetary system, our legal system, our government—the whole works—are premised on a continuing exponential growth." However, this growth phase, at least for countries like the United States, was "just about over," he said. "Now we're running into a situation where we cannot keep up exponential growth."

Hubbert explained he didn't want to create a sense of alarm or doom. He still was hopeful about humanity's ability to cope with the situation. The problem wasn't so much about resources or technology but about ways of thinking. "We're going into a cultural shock or crisis far more than we are going into an energy crisis," he concluded.

Very soon, though, the situation would grow far worse.

"The Saudis are getting heady over the power of oil," Secretary of Defense James Schlesinger told other top officials, including Secretary

of State Henry Kissinger and the head of the Central Intelligence Agency. They met over breakfast in the White House's Map Room on November 3, 1973, just weeks after war had broken out again in the Middle East, and Saudi Arabia and other members of OPEC had slashed their production and instituted an embargo against the United States.

These top US officials were in the midst of developing a plan for the Marines to invade the small, oil-rich kingdom of Abu Dhabi on the Arabian Peninsula and seize control of its oil fields-and to send a warning to other OPEC members. Even before the embargo, Marines had been training in the Mojave Desert for such an invasion. Soon the US military would have two navy destroyers at the entrance to the Persian Gulf, and an aircraft carrier, the USS John Hancock, was moving into the area.

"We need a public line on the Hancock when it arrives," Schlesinger said.

"Routine," Kissinger said. "An exercise we have been planning a long time."

After discussing strategies for the conflict between Egypt and Israel, and how to keep the Soviets from getting too involved, Kissinger concluded, "Let's work out a plan for grabbing some Middle East oil if we want."

"Abu Dhabi would give us what we want," Schlesinger replied.

During the 1956 Suez Canal crisis, Saudi Arabia had instituted an embargo, to little effect. In 1967, OPEC had tried to use an oil embargo as a weapon, and that likewise fizzled. Throughout 1973, OPEC members-including Saudi Arabia, Libya, Iraq, and Kuwait-had been again warning that if the United States didn't change its policies toward Israel, they would cut off oil exports to America. Most US officials did not take the warnings seriously.

The situation in 1973, however, was much different. The United States was still the world's largest oil producer-but it was also the world's largest oil consumer. The nation had eaten through its spare capacity. Its production was falling while its consumption continued rising. As James Akins, the White House energy adviser, had predicted several months earlier, "This time the wolf is here."

Egypt's leader Anwar Sadat had wanted to break a stalemate

following Egypt's 1967 war with Israel, and to push the United States to be more even-handed in its policies toward the region. After tensions in the region mounted for months, in early October 1973 Egypt launched a surprise attack on Israel.

In response, United States tried to placate Arab nations, while also quietly aiding its longtime ally Israel. But when Arab nations discovered this aid to Israel, they followed through on their threats, slashing oil production by 10 percent and vowing further cuts until the war was resolved, and hiked prices by nearly double. They also instituted an embargo, barring tankers from carrying their oil to the United States. International oil companies followed the embargo to the letter but undercut the spirit of it by reshuffling global oil shipments—just as they had during earlier embargoes. But this time, OPEC had more power over world markets. They were able to restrict the total amount of oil for sale, so consumers had to swallow higher prices.

Up to then, the Nixon administration had done almost nothing to prepare for such a situation. Nixon's top foreign policy adviser, Henry Kissinger—by then promoted to secretary of state—had been busy trying to negotiate a cease-fire in Vietnam, for which he won a Nobel Peace Prize earlier in 1973. Others in the administration had been consumed with reelection, continuing stagflation, and the deepening Watergate scandal.

Once OPEC instituted the embargo, the Nixon administration's outlook suddenly flipped. Kissinger considered it “blackmail” and pressured the major oil-consuming nations to respond by forming a united front. Meanwhile Kissinger and Schlesinger continued discussing plans to invade Abu Dhabi.

On November 11, Nixon took to television and gave the American people a stark warning: “We are heading toward the most acute shortages of energy since World War II.” Nonetheless he remained positive and reassuring. “This does not mean that we are going to run out of gasoline or that we will freeze in our homes,” he said. “The fuel crisis need not mean genuine suffering for any American. But it will require some sacrifice by all Americans.”

For the longer term, Nixon had a vision. Invoking the Apollo Project to put a man on the moon, and the Manhattan Project to develop the atomic bomb, he called for a new national goal of freeing America from “foreign energy sources”—which meant oil, the only energy source the

United States imported in any significant quantity. "Let us pledge," he said, "that by 1980, under Project Independence, we shall be able to meet America's energy needs from America's own energy resources."

The day after Nixon's speech, Hubbert began a long lecture tour—a "man killer," he called it, nine weeks of travel across the United States and Canada. The tour was sponsored by the American Association of Petroleum Geologists, which had invited him to make the tour months before the OPEC embargo. Hubbert's talk, "The World's Energy Economy," covered his overall outlook—in particular, the peaks of US and world oil and the coming end of growth. He typically drew 150 or 200 people at a time, over the whole tour reaching some ten thousand people.

"Audiences are no longer disposed to argue," Hubbert told Stewart Udall, the former interior secretary, when they spoke in the midst of his tour. "There is a very sober, thoughtful attitude with regard to the situation."

Just as audiences had changed their attitude, Hubbert told them he'd changed his mind about a crucial issue: the world's ideal energy source for the long term.

Throughout his time advising the Atomic Energy Commission, Hubbert had been critical of its handling of nuclear wastes. All along, he had thought these problems could be fixed—and must be fixed—because he had considered atomic energy essential for maintaining industrial civilization for centuries or millennia. He'd followed the technology as it emerged from military applications—for building bombs and powering submarines—and became a commercial reality. He'd seen nuclear power generation rise quickly through the 1960s and early 1970s, so that by 1974 nuclear supplied 6 percent of US electricity—a significant portion, but still less than the share of electricity derived from hydroelectric dams or natural gas, or even from oil.

After advising on nuclear power for more than fifteen years, Hubbert was frustrated. He felt the AEC showed little interest in handling nuclear waste carefully. Breeder reactors, which he thought essential, had been treated as a side-project. Nonetheless, as recently as 1972 he'd stated, in an interview with *Newsweek*, that nuclear was "the only source to meet the world's power requirements in the future."

By the time of his AAPG lecture tour in 1973, he told audiences, his

view had turned around “180 degrees.”

“Fifteen years ago I was like everyone else in thinking nuclear power would help meet our energy needs,” Hubbert said in one talk. “But I’ve gradually come around to look at the hazardous aspects and it scares the hell out of me.” The same technologies for creating nuclear power plants could be used to assemble the material for more warheads, he pointed out—and in “this unsteady world, with a propensity for throwing bombs at each other, the chances of a nuclear disaster have become increasingly frightening.” It wasn’t simply the Cold War faceoff between the Americans and Soviets. Terrorists might attempt to “hold up New York or London or Paris,” he argued. He concluded that nuclear was a “perpetual hazard,” creating wastes requiring “perpetual care.”

In the early 1960s, Hubbert had thought solar power might be feasible only for developing countries or for special applications such as satellites. By the early 1970s, he’d come to see more promise in this approach, arguing in favor of government-funded research on large-scale solar power plants. He thought people had the basic knowledge to build them but warned that “the technological difficulties of doing so should not be minimized.” Meanwhile he’d continued following solar research and development—attending international conferences and visiting with scientists to learn of their progress.

With Hubbert’s 180-degree turn, he touted the power of the sun. “Solar energy dwarfs everything else in sight,” he argued. “It turns out the big source of energy on this earth is sunshine. It’s inexhaustible. It’s been pouring in for billions of years and will continue for billions of years when the human species isn’t here.”

Though he’d downplayed solar power before, he admitted, “I’m happy to say that I was proven wrong.”

As Hubbert traveled on his lecture tour, the Nixon administration continued with efforts to resolve the Middle East conflict. Kissinger and Schlesinger discussed how to get Congress to approve a \$2 billion package for military aid to Israel, and how to break OPEC’s embargo.

In a meeting in the White House’s Map Room on November 29, six weeks after the start of the embargo, Kissinger said, “The Saudis are blinking.”

“They think we knocked off Idris,” Schlesinger said, referring to the king of Libya, who’d been deposed by Muammar Gaddafi a few years earlier.

“They have never played in this league before. They are scared,” Kissinger said.

“We need to build a presence in the Middle East,” Schlesinger said.

“It is essential,” Kissinger replied, adding, “Can’t we overthrow one of the sheikhs just to show that we can do it?”

Meanwhile consumers around the world felt the bite of OPEC’s oil cutbacks. In the eastern United States, there were local fuel shortages. Hit first and hardest were independent truckers, whose earnings were slashed once oil prices shot up. They began blockading freeways and turnpikes from New Jersey to Ohio and planned nationwide protests. One trucker told a reporter, “We want Nixon and his people, when they turn on the television, to hear us.”

In some areas, gas stations ran out of fuel after being open only a few hours each day. Several states instituted “odd-even” rules, by which people had to take turns, able to fuel up only every other day, depending on whether their license plate ended in an odd or an even number. One Pennsylvania gas station attendant recalled that when tankers drove through town on their way to deliver more fuel, “motorists would follow the trucks right up to the pumps.”

To try to manage the situation, Nixon created a Federal Energy Office and put his treasury secretary, William Simon, in charge. When asked when the United States would consider national fuel rationing, Simon replied, “I would say a critical factor would be if people begin queuing up at gas stations for three or four hours at a time.” The Boston Globe commented, “A government policy based solely on visible chaos is something to ponder.”

In the face of shortages, many called for the United States to boost its oil production. The development of Alaska’s Prudhoe Bay oil field—estimated to be the nation’s largest discovery to date—had been stuck in legal limbo for four years. Within a month of the OPEC embargo, however, Congress overrode the legal challenges to the pipeline across Alaska, finally pushing through its approval. However, it was a “triumph of scare propaganda and economic pressure over reasoned public policy,” argued a New York Times editorial, since the pipeline would take years to build, providing no help in the short run.

Before the embargo, the United States had already been suffering from stagflation. With the oil price hike, inflation grew worse, eroding consumers' purchasing power, and the economy sank into a recession. The price hike had an even larger effect on other nations entirely dependent on oil imports—all of Western Europe, and fast-growing Asian countries such as Japan and Korea.

In the face of higher prices for gasoline, job losses, and a worsening economy, Americans cut back their consumption. When they did buy cars, they opted for more efficient ones, leading *Time* magazine to declare on its cover, "The Big Car: The End of the Affair." Speed limits in many locales were lowered to fifty miles per hour, and some states gave incentives to employees to carpool to work. Businesses and homes lowered their thermostats and turned off unnecessary lighting, including advertisements and streetlights. The floodlights that had lit Chicago's Wrigley Building almost continuously for half a century were switched off.

By early 1974, OPEC members talked openly of lifting the embargo and raising production. Anticipating an end to fuel shortages, a top energy official announced that the federal government would sell off oil in emergency stockpiles, "so that we can release the energy supplies needed to support sustained economic growth." The government was eager to get back to normal—that is, to times of growth.

In mid-March 1974, most OPEC members—including the biggest producer, Saudi Arabia—did end their embargoes. However, oil prices remained as high as ever, which took a heavy toll on the US economy. With Americans questioning their addiction to cars and their assumption that resources were essentially limitless, the oil shock turned out to be, as Hubbert had put it, a "cultural shock."

