than curing people was kept a state secret; while in fee-for-service countries, like America, healthy people were whisked into glossy theaters to have dangerous, unnecessary and expensive operations for heart conditions that in socialist medicine countries were treated more comfortably and effectively by sitting at home imbibing drugs, which cautious regulatory bodies like the U.S. Food and Drug Administration had banned.

In 1985–93, almost ludicrously, the two medical systems of America and Britain moved part-way back to adopting the other's mistakes. The supposedly free-market Reagan administration in America reacted against America's runaway health costs by imposing some complicated price controls called DRGs. These made treating poor people for certain surgical operations relatively uneconomic in American hospitals, so the British system (of waiting in long queues, in very great pain) began also in the United States. Meanwhile in Britain the right-wing Thatcher government thought that competition with the NHS should be stimulated by tax concessions for private health insurance. It introduced these without observing from American experience that third-party health insurance plus fee-for-service sent private health costs through the roof. The result after 1985 was a large accession of loss-making business to British private health insurers who therefore started to go bust. The first Kinnock government's Chancellor of the Exchequer, called Hattersley, had said he was a socialist mainly because he opposed private health insurance; he spent much of his chancellorship in the early 1990s pouring out taxpayers' money in order to bail private health insurers out.

It was quite usual in most of the latter part of the twentieth century for politicians to have to reverse course in that way. The service that an ordinary person requires of a health delivery system is to keep him healthy. The incentive given by fee-for-service systems like America's in the twentieth century was, "Treat this patient in the most expensive possible way after he has become ill." The incentive given in socialist medicine systems like Britain's was, "Keep my hospital filled with people who are not really ill because they will be less bother than

days. It also involved some minor wastefulness. Doctors were allowed to make profits from selling drugs, and the bloodstream of the hypochondriac Japanese people became as filled with unnecessary drugs as Manhattan's East River then was with pollutants. But the Japanese big-company health delivery system was dramatically more cost-effective than the parallel health schemes run by the Japanese government and private health insurers. Commissions from abroad and within Japan kept examining why. The reason, some of them rightly reported, was that these health delivery systems in Japan worked much as health maintenance organizations had been meant to work when they were first introduced in California in the 1960s.

In 1985 HMOs had enrolled only 4 per cent of the population of the United States, and enthusiasts were disappointed at their slow growth. An HMO required a fixed fee from each member per year, and then promised to provide all the medical care he needed. In the early 1980s Americans who were enrolled in HMOs went to hospital between 25 and 40 per cent less frequently than Americans enrolled in other insurance schemes. The HMO would examine you, and had an incentive to say if hospitalization was not necessary. As the health record of HMO members was as good as the health record of those in other insurance schemes, it looked as if other Americans were being sent to hospital far too much. HMOs did not flourish in the 1970s and most of the 1980s. They were opposed from both right wing and left wing. From the right wing an HMO doctor was apt to be called a socialist or communist by fee-for-service physicians, and ostracized at the country club. From the left wing the system was attacked as substandard doctoring because HMOs tried to reduce costs.

In 1992 the U.S. Congress adopted a variant of the scheme which Professor Alain Enthoven of Stanford University had advocated in his book called *Health Plan* twelve years before. Enthoven's scheme was that, "Once a year, each family (or individual) would have the opportunity to enroll for the coming year in any of the qualified health plans operating in its area. The amount of financial help each family gets towards the

purchase of its health plan membership—from Medicare, Medicaid, employer, or tax laws—would be the same whichever plan it chooses. The subsidy might be more for poor than for non-poor, for families than for individuals, but not more for people who choose more costly health plans. The family that chooses a more costly health plan would pay the extra cost itself." Enthoven thought this scheme would lead to massive enrollment in competitive HMOs as the consumers' best buy. He proved right. HMOs were a fast spreading form of delivery of health care in the rich countries well before the Centrobank scheme in 2006 so successfully spread them to the Third World. Their growth in the Third World produced a new sort of HMO. In America until 2006 HMOs had been employed under a contract, "Try to keep me well"; after 2006 they started to be paid more if they did.

Today most people in all countries, both in cities and scattered communities, rely on one or other sort of HMO contract for most of their health care, though individuals often combine them with other insurance or fee-for-service systems. It was in 1990–2010 that we moved from systems with built-in cost-increasing incentives to systems with built-in incentives for producer competition, consumer choice and cost control. It happened that America was removing the second hurdle out of the way of sensible health care at the same time.

The second hurdle had been set by bureaucracy. America in the 1970s caught the regulatory disease. By 1979 there were 77,497 pages in the Federal Register detailing the health and safety regulations that must be obeyed by all Americans, though nobody could ever have time to read even half of them. They included regulations which obliged a geologist to install a stretcher at his one-man mine, and rules which said that pills for arthritis could be sold only in childproof containers which those with arthritic hands could not conceivably open. But the sternest rules from the Food and Drug Administration (FDA) in the wasted 1970s were those blocking the introduction of new drugs and medical devices.

In the second half of the 1970s tens of thousands of pages of

data had to be supplied to the FDA before a new drug was approved. Nobody could possibly read such lengthy reports, but this vetting process made the introduction of many new drugs uneconomic. During the 1960s American wonder-drugs had been appearing in profusion. We now know from our computer analyses of history that millions of people died unnecessarily because the period of over-regulation by the FDA temporarily slowed that down. But it was not possible then, as it is now, to say, "This computer analysis clearly shows we are doing something silly, so let us stop doing it."

By the late 1990s the information revolution had advanced far enough for the tests required on new drugs to be codified. It was possible to say, "If a drug passes the following computer tests, it is safe to introduce it onto the market." The two University of Houston statisticians who devised these computer tests won the Nobel Prize for Medicine in 1996, and never was a prize more deserved. The flow of new American wonder-drugs resumed just in time for the Biological Revolution.