Newsletter 57: Agribusiness and Our Vulnerable Food Chains

Dear Reader,

During the ongoing coronavirus crisis, one unprecedented in modern history, scenes of farmers dumping unsaleable milk, gassing millions of chicks and pigs across the United States because of the forced lockdown of public restaurants, school cafeterias and other public places have put the spotlight on the extreme vulnerability of the global food supply chain to catastrophic disruption. I include this time an excerpt from my best-selling book, ***Seeds of Destruction: The Hidden Agenda of Genetic Manipulation*** that describes the extraordinary transformation of traditional modern American family farm agriculture into a top-down for-profit cartel of mega-firms called Agribusiness.

Please consider purchase of one or more of my books as well as a support via my PayPal on my website so that I am able to continue to offer my work open to all. With internet censorship by self-appointed private "guardians" of truth around the major tech giants such as Google, Facebook, Twitter and friends, the ability of independent voices such as mine are under threat as never before to continue.

With my best regards,
William Engdahl
www.williamengdahl.com

Customer Reviews of *Seeds of Destruction: The Hidden Agenda of Genetic Manipulation*:

"Most Important Book of this New Century" -- David Chu

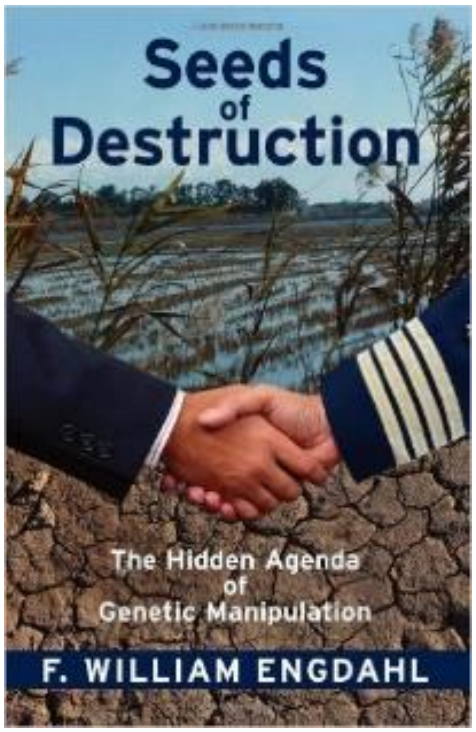
"Get ready to have your eyes opened, big-time." -- Laura

"Could not put it down till I read it through." -- Blue Rabbit

"Everyone Should Read This Book" -- DeannaF

"WARNING: If you are timid and faint of heart, do not read "SEEDS of DESTRUCTION" by F. William Engdahl. Instead, go back to sleep, and take comfort in being lied to by American corporations and U.S. governmental agencies. After all, ignorance is bliss. Otherwise, "SEEDS of DESTRUCTION" is a MUST-READ book" -- Justin Time

You can find this great and informative book on amazon.com:



Rockefeller and Harvard invent USA 'Agribusiness'

A Green Revolution opens the door

The Rockefellers' Green Revolution began in Mexico and was spread across Latin America during the 1950's and 1960's. Soon after, backed by John D. Rockefeller's networks across Asia, it was introduced in India and elsewhere in Asia. The 'revolution' was a veiled effort to gain control over food production in key target countries of the developing world, promoted in the name of free enterprise market efficiency against alleged 'communist inefficiency.'

In the aftermath of World War II, with Germany's I.G. Farben a bombed-out heap of rubble, American chemical companies emerged as the world's largest. The most prominent companies—DuPont, Dow Chemical, Monsanto, Hercules Powder and others—faced a glut of nitrogen production capacity which they had built up, at US taxpayer expense, to produce bombs and shells for the war effort.

An essential chemical for making bombs and explosives, nitrogen was a prime component of TNT and other high explosives. Nitrogen could also form the basis for nitrate fertilizers. The chemical industry developed the idea of creating large new markets for their nitrogen in the form of fertilizers, ammonia nitrate, anhydrous ammonia, for both domestic US agriculture and for export.

The nitrogen fertilizer industry was part of the powerful lobby of the Rockefeller Standard Oil circles which, by the end of the War, included DuPont, Dow Chemicals and Hercules Powder among others.

The global marketing of the new agri-chemicals after the war also solved the problem of finding significant new markets for the American petrochemical industry as well as the grain cartel, a group of four to five companies then including Cargill, Continental Grain, Bunge and ADM. The largest grain traders were American and their growth was a product of the development of special hybrid seeds through the spread of the Green Revolution in the 1960's and 1970's. Agriculture was in the process of going global and the Rockefeller Foundation was shaping that process of agribusiness globalization.

With a monopoly on the agricultural chemicals and on the hybrid seeds, American agribusiness giants were intent on dominating the global market in agriculture trade. After all, as Kissinger noted in the 1970's, 'If you control the

food you control the people.' Governments from the developing sector to the European Economic Community, the Soviet Union and China, soon depended on the powerful grain cartel companies to provide the needed grains and food products to maintain their political stability in times of bad harvest.

Truly, there was genuine US Government concern to contain communist and nationalist movements in the developing world during the 1960's by offering food aid in the form of privately sponsored agricultural inputs. However, the combination of US Government aid and the techniques being developed in the name of a Green Revolution would present a golden opportunity for the influential policy-making circles around Rockefeller and their emerging agribusiness groups to turn that concern to their advantage.

Nelson Rockefeller worked hand-in-glove on agriculture with his brother, John D. III, who had set up his own Agriculture Development Council in 1953, one year after he had founded the Population Council. The focus of the Agriculture Development Council was Asia, while Nelson concentrated on his familiar turf in Latin America. They shared the common goal of long-term cartelization of world agriculture and food supplies under their corporate hegemony.

When the Rockefeller Foundation's Norman Borlaug came into Mexico in the 1950's, he worked on hybrid forms of rust-resistant wheat and hybrid corn types, not yet the genetically engineered projects to come several decades later. Behind the façade of agricultural and biological science, however, the Rockefeller group was pursuing a calculated strategy through its Green Revolution during the 1950's and 1960's.

The heart of its strategy was to introduce 'modern' agriculture methods to increase crop yields and, so went the argument, thereby to reduce hunger and lessen the threat of potential communist subversion of hungry, unruly nations. It was the same seducing argument used years later to sell its gene revolution.

The Green Revolution was the beginning of global control over food production, a process made complete with the Gene Revolution several decades later. The same companies, not surprisingly, were involved in both, as were the Rockefeller and other powerful US foundations.

In 1966, the Rockefeller Foundation was joined by the considerable financial resources of the Ford Foundation, another US private tax-exempt foundation which enjoyed intimate ties to the US Government, intelligence and foreign policy establishment. Together with the Ford resources, the Rockefeller Foundation's Green Revolution went into high gear.

That year of 1966, the Government of Mexico along with the Rockefeller Foundation set up the International Maize and Wheat Improvement Center (CIMMYT). The center focused its work on a wheat program, which originated from breeding studies begun in Mexico in the 1940s by the Rockefeller Foundation.[1]

Their efforts in food and agriculture received a boost that same year when US President Lyndon Johnson announced a drastic shift in US food aid to developing countries under P.L. 480, namely that no food aid would be sent unless a recipient country had agreed to preconditions which included agreeing the Rockefeller agenda for agriculture development, stepping up their population control programs and opening their doors to interested American investors.[2]

In 1970, the Rockefeller's Norman Borlaug won the Nobel Prize. Interestingly enough, it was not for biology but for peace, the same prize Henry Kissinger was to receive several years later. Both men were also protégé's of the influential Rockefeller circles.

In reality, the Green Revolution introduced US agribusiness into key developing countries under the cover of promoting crop science and modern techniques. The new wheat hybrids in Mexico required modern chemical fertilizers, mechanized tractors and other farm equipment, and above all, they required irrigation, which meant pumps driven by oil or gas energy.

The Green Revolution methods were suitable only in the richest crop areas, and it was deliberately aimed at the richest farmers, reinforcing old semi-feudal Latifundist divisions between wealthy landowners and poor peasant farmers. In Mexico, the new wheat hybrids were all planted in the rich, newly-irrigated farm areas of the Northeast. All inputs, from fertilizers to tractors and irrigation, required petroleum and other inputs from advanced industrial suppliers in the United States. Oil and agriculture joined forces under the Rockefeller aegis.

In India, the Green Revolution was limited to 20 percent of land in the irrigated North and Northwest. It ignored the huge disparity of wealth between large feudal landowners in such areas and the majority of poor, landless peasants. Instead, it created pockets of modern agribusiness tied to large export giants such as Cargill. The regions where the vast majority of poorer peasants worked remained poor. The introduction of the Green Revolution did nothing to change the gap between rich feudal landowners and poor peasants, but overall statistics showed significant rises in Indian wheat production.

Training cadre for the bio-revolution

In 1960, the Rockefeller Foundation, John D. Rockefeller III's Agriculture Development Council and the Ford Foundation joined forces to create the International Rice Research Institute (IRRI) in Los Baños, the Philippines. By 1971, the Rockefeller Foundation's IRRI, along with their Mexico-based International Maize and Wheat Improvement Center and two other Rockefeller and Ford Foundation-created international research centers, the IITA for tropical agriculture, Nigeria, and IRRI for rice, Philippines, combined to form a global Consultative Group on International Agriculture Research (CGIAR).

CGIAR was shaped at a series of private conferences held at the Rockefeller Foundation's conference center in Bellagio, Italy. Key participants at the Bellagio talks were the Rockefeller Foundation's George Harrar, Ford Foundqation's Forrest Hill, Robert McNamara of the World Bank and Maurice Strong, the Rockefeller family's international environmental organizer, who, as a Rockefeller Foundation Trustee, organized the UN Earth Summit in Stockholm in 1972.

To ensure maximum impact, CGIAR drew in the United Nations' Food and Agriculture Organization, the UN Development Program and the World Bank. Thus, through a carefully-planned leverage of its initial funds, Rockefeller by the beginning of the 1970's was in a position to shape global agriculture policy. [3]

Financed by generous Rockefeller and Ford Foundation study grants, CGIAR saw to it that leading Third World agriculture scientists and agronomists were brought to the US to 'master' the concepts of modern agribusiness production, in order to carry it back to their homeland. In the process they created an invaluable network of influence for US agribusiness promotion in those countries, all in the name of science and efficient, free market agriculture.

This Rockefeller Foundation network of institutes and research centers had gradually laid the basis to control agricultural research and development strategy for much of the developing world by the time Kissinger was commissioned to draft NSSM 200.

John D. Rockefeller III's Agricultural Development Council also deployed US university professors to select Asian universities to train a new generation of scientists. The best scientists would then be selected to be sent to the United States to get their doctorate in agriculture sciences, and coming out of the American universities, would follow the precepts close to the Rockefeller outlook on agriculture. This carefully-constructed network was later to prove crucial in the Rockefeller Foundation's later strategy to spread the use of genetically-engineered crops around the world.

In a widely read handbook, Arthur Mosher, Executive Director of the Rockefeller Agriculture Development Council, insisted on teaching peasants to 'want more for themselves.' They were to be urged to abandon 'collective habits and get on with the 'business' of farming.' Rockefeller's Mosher called for extending educational programs for women and building youth clubs, to create more demand for store-bought goods. He argued that, the 'affection of husbands and fathers for their families' would make them responsive to these desires and drive them to work harder. Of course they would have to take out loans to invest in all this new technology, tying them even more to the new market economy.[4]

Through the Green Revolution, the Rockefeller and Ford Foundations worked hand-in-hand with the foreign policy goals of the US State Department's Agency for International Development (AID) and of the CIA.

One major effect of the Green Revolution was to depopulate the countryside of peasants who were forced to flee into shantytown slums around the cities in desperate search for work to survive on. That was no accident; it was part of the plan to create cheap labor pools for forthcoming US multinational manufactures.

When the self-promotion around the Green Revolution died down the true results were quite different from what had been promised. Problems had arisen from indiscriminate use of the new chemical pesticides, often with serious health consequences. The mono-culture cultivation of new hybrid seed varieties decreased soil fertility and yields over time. The first results were impressive: double or even triple yields for some crops such as wheat and later corn in Mexico. That soon faded.[5]

The Green Revolution was typically accompanied by large irrigation projects which often included World Bank loans to a country to construct huge new dams and flood previously settled areas and fertile farmland in the process. Also, super-wheat produced greater yields by saturating the soil with huge amounts of fertilizer per acre, the fertilizer being the product of nitrates and petroleum, commodities controlled by the Rockefeller-dominated Seven Sisters major oil companies.

Huge quantities of herbicides and pesticides were also used, creating additional markets for the oil and chemical giants. As one analyst put it, in effect, the Green Revolution was merely a chemical revolution. At no point could developing nations pay for the huge amounts of chemical fertilizers and pesticides. They would get the credit courtesy of the World Bank and special loans by Chase Bank and other large New York banks, backed by US Government guarantees.

Those loans went mostly to the large landowners in a country. For the smaller peasants the situation worked differently. Small peasant farmers could not afford the chemical and other modern inputs and had to borrow money. Initially various government programs tried to provide some loans to farmers so that they could purchase seeds and fertilizers.

Farmers who could not participate in this kind of program had to borrow from the private sector. Because of the exorbitant interest rates for informal loans, many small farmers did not even get the benefits of the initial higher yields. After harvest, they had to sell most if not all of their produce to pay off loans and interest. They became dependent on money-lenders and traders and often lost their land to them. Even with soft loans from government agencies, growing subsistence crops gave way to the production of cash crops for the market.[6]

The Green Revolution also introduced new machines for land preparation. Most notable was the so-called power tiller or turtle tiller. This machine, which puddled the rice paddy soil, also destroyed much of the natural soil structure. But, it was very efficient in doing that.

Another crucial aspect driving the interest of US agribusiness companies was the fact that the Green Revolution was based on proliferation of new hybrid seeds in developing markets. One vital aspect of hybrid seeds was their lack of reproductive capacity. Hybrids had a built in protection against multiplication. Unlike normal open pollinated species whose seed gave yields similar to its parents, the yield of the seed borne by hybrid plants was significantly lower than that of the first generation.

That declining yield characteristic of hybrids meant farmers must normally buy seed every year in order to obtain high yields. Moreover, the lower yield of the second generation eliminated the trade in seed that was often done by seed producers without the breeder's authorization. It prevented the redistribution of the commercial crop seed by middlemen. If the large multinational seed companies were able to control the parental seed lines in house, no competitor or farmer would be able to produce the hybrid. The global concentration of hybrid seed patents into a handful of giant seed companies, led by Pioneer HiBred and Monsanto's Dekalb laid the ground for the later GMO seed revolution.[7]

In effect, the introduction of modern American agricultural technology, chemical fertilizers and commercial hybrid seeds all made local farmers in developing countries, particularly the larger more established ones, dependent on foreign inputs to produce. It was a first step in what was to be a decades-long, carefully planned process. Agribusiness was making major inroads into markets which were previously of limited access to US exporters. The trend was later

dubbed ‘market-oriented agriculture.’ In reality it was agribusiness-controlled agriculture.

The Green Revolution and its hybrid seeds promised a major new controlled market for US agribusiness. Henry Wallace, Franklin Roosevelt’s Secretary of Agriculture, had built the first major hybrid seed company, Pioneer Hi-Bred, largely by encouraging selective USDA government research on the positive yield gains of hybrids and downplaying their negative features. It enabled the growth of huge commercial seed companies. This laid the basis for the later development of genetic patented seeds by a handful of Western agribusiness giants.

The chemical industry also claimed that the increased crop yields were only possible with the help of their products. The US Government, through US AID and other government aid programs, backed this view, and convinced the host developing sector governments to support them. This led to a situation where farmers disregarded other more traditional means of yield improvement, which were labeled primitive and inefficient by the Rockefeller and Ford country advisers.[8]

Use of High Yield Varieties (HYV) of hybrid wheat, corn or rice, and major chemical inputs soon became the dominant practice among a region’s farmers. Local government officials no longer considered the option of possible yield improvement based on traditional practices. Often, the international chemical industry intervened to suppress or to hinder research programs that would challenge their high input approach. This was a worldwide trend.[9]

In 1959, a team led by the US Department of Agriculture published the Ford Foundation's ‘Report on India's Food Crisis and Steps to Meet It.’ In place of fundamental changes such as redistribution of land and other rural assets from the large quasi-feudal landowners as the foundation for a more effective Indian agricultural development, the Ford report stressed technological change including improved seeds, chemical fertilizers, and pesticides in small, already irrigated pockets of the country. It was the 'Green Revolution' strategy.

Ford even funded India’s Intensive Agricultural Development Program (IADP) as a test case of the strategy, providing rich farmers in irrigated areas with subsidized inputs, generous credit and price incentives. The World Bank backed the strategy with generous loans.

Soon, the Rockefeller-Ford Green Revolution was adopted by the Indian government, with far-reaching effects. Agricultural production of rice and wheat in the selected pockets grew immediately with the new hybrids and chemical

inputs. Talk of land reform, tenancy reform, abolition of usury, was dropped from official Indian Government agenda, never to return.[10]

The initial spectacular growth rates eventually slowed, though this aspect was not widely publicized, leaving the one-sided impression of success. On average, overall agricultural production in India grew more slowly after the Green Revolution than before, and in much of the country, per capita agricultural output stagnated or fell.[11] But the Green Revolution had one success: it created a large new market for US and other foreign agribusiness multinational firms to sell their chemicals, petroleum, machinery and other inputs to developing countries. It was the beginning of what was called agribusiness.

Rockefeller finances the creation of Agribusiness

While the Rockefeller brothers were expanding their global business reach from oil to agriculture in the developing world through their Green Revolution scheme, they were financing a little-noticed project at Harvard University, which would form the infrastructure to globalize world food production under the central control of a handful of private corporations. Its creators gave it the name 'agribusiness,' in order to differentiate it from traditional farmer-based agriculture – that is, the cultivation of crops for human sustenance and nutrition.

Agribusiness and the Green Revolution went hand-in-hand. They were part of a grand strategy which included Rockefeller Foundation financing of research for the development of genetic alteration of plants a few years later.

John H. Davis had been Assistant Agriculture Secretary under President Dwight Eisenhower in the early 1950's. He left Washington in 1955 and went to the Harvard Graduate School of Business, an unusual place for an agriculture expert in those days. He had a clear strategy. In 1956, Davis wrote an article in the *Harvard Business Review* in which he declared that 'the only way to solve the so-called farm problem once and for all, and avoid cumbersome government programs, is to progress from agriculture to agribusiness.' He knew precisely what he had in mind, though few others had a clue back then.[12]

Davis, together with another Harvard Business School professor, Ray Goldberg, formed a Harvard team with the Russian-born economist, Wassily Leontief, who was then mapping the entire US economy, in a project funded by the Rockefeller Foundation. During the war, the US Government had hired Leontief to develop a method of dynamic analysis of the total economy which he referred to as input-output analysis. Leontief worked for the US Labor Department as well as for the Office of Strategic Services (OSS), the predecessor to the CIA.

In 1948, Leontief got a major four-year $100,000 grant from the Rockefeller Foundation to set up the Harvard 'Economic Research Project on the Structure of the American Economy.' A year later, the US Air Force joined the Harvard project, a curious engagement for one of the prime US military branches. The transistor and electronic computers had just been developed along with methods of linear programming that would allow vast amounts of statistical data on the economy to be processed. Soon the Ford Foundation joined in the Harvard funding.

The Harvard project and its agribusiness component were part of a major attempt to plan a revolution in US food production. It was to take four decades before it dominated the food industry. Goldberg later referred to the agribusiness revolution and the development of gene-modified agribusiness as 'changing our global economy and society more dramatically than any other single event in the history of mankind.'

Monopoly and Vertical Integration return with a vengeance

As Ray Goldberg boasted years later, the core idea driving the agribusiness project was the re-introduction of 'vertical integration' into US food production. By the 1970's, few Americans realized that bitter battles had been fought to get Congress to outlaw vertical integration by giant conglomerates or trusts such as Standard Oil, in order to prevent them from monopolizing whole sectors of vital industries.

It wasn't until the David Rockefeller-backed Presidency of Jimmy Carter in the late 1970's that the US multinational business establishment was able to begin the rollback of decades of carefully constructed US Government regulations of health, food safety and consumer protection laws, and open the doors to a new wave of vertical integration. The vertical integration process was sold to unaware citizens under the banner of 'economic efficiency' and 'economy of scale.'

A return to vertical integration and the accompanying agribusiness were introduced amid a public campaign in prominent media claiming that government had encroached far too much into the daily lives of its citizens and had to be cut back to give ordinary Americans 'freedom.' The war cry of the campaigners was 'deregulation.' What they carefully left out of their propaganda was that deregulation by government merely opened the door to de facto private regulation by the largest and most powerful corporate groups in a given industry.

The person who first called openly for deregulation of government controls and privatization, well before Jimmy Carter, Ronald Reagan or Margaret Thatcher,

was John D. Rockefeller III. In 1973, he published the book, '*The Second American Revolution.*' In the book and in numerous public addresses, Rockefeller called for a 'deliberate, consistent, long-term policy to decentralize and privatize many government functions…to diffuse power throughout the society.'[13]

Well before that, however, Davis and Goldberg had begun to industrialize specific sectors of American agriculture into agribusiness through vertical integration, ignoring anti-trust laws, and using Leontief's input-output approach to identify the entire production and distribution chain.

The first result of the collaboration between Davis, Goldberg and Leontief was a project to industrialize the Florida citrus industry. The control of small citrus farmers soon gave way to large national orange juice processors such as Sunkist, who dominated prices paid to the farmer through control of distribution and processing.[14]

Their next target was to develop a strategy for the industrialization of the US wheat-to-consumer chain as well as the soybean market for animal feed. As the Government, step-by-step, removed regulatory controls on agriculture or on monopoly, the vertical integration of the food industry accelerated.

Significantly, the first American industry to be completely vertically integrated had been oil, under the Rockefeller Standard Oil Trust in 1882. Despite repeated attempts by numerous states to outlaw Rockefeller's monopolistic control of oil and freight prices, even a Supreme Court decision in 1911 failed to break up the cartel in oil, which went on to dominate the global oil trade for the following century. The Standard Oil model, not surprisingly, was the model for the Harvard Rockefeller Foundation project to create agribusiness from agriculture.

In the 1920's, a series of laws had been passed by the US Congress to control food monopolies, especially in the meat sector, following the revelation of shocking practices in the US meatpacking and processing industry, by writers such as Upton Sinclair whose book *The Jungle* described the fetid, unsanitary and often inhuman conditions of the meatpacking industry.

Five major companies—Armour, Swift, Morris, Wilson and Cudahy—were then in a position, as the US Government's newly-founded Federal Trade Commission (FTC) accused them, of trying 'to monopolize all the nation's food supply' by the 1920's. The five had systematically and illegally acquired a near monopoly in meatpacking.[15]

The Big Five then controlled who had access to public stockyards for the cattle. They interfered with the livestock marketing process through monopoly control,

controlled wholesale distribution channels, and restricted what retailers could buy. With the invention of the refrigerated railcar and assembly-line continuous meat processing plants, the meat companies vertically integrated. They integrated forward into marketing the beef, and backward into monopolizing supply of raw material—beef cattle and hogs.

An FTC investigation in the early 1920's found that the five companies had dominated the purchase of livestock by controlling major stockyards, terminal railroads, livestock credit, market news media, and sites for potential rival packing plants. Furthermore, they had used their domination to force out new competitors and had cartelized the remaining market among themselves illegally. They controlled the retail level by owning refrigerator transport cars, cold storage warehouses and severely reduced competitor market access. Not content with all that, according to the Government investigation, the Big Five meat packers also controlled the market for substitute foods by buying or controlling them.[16]

By the 1970's, the US food supply was once more going into the hands of a tiny, monopoly of agribusiness producers. This time, aided by the Rockefeller and Ford Foundation funding of the Harvard Economic Research Project on the Structure of the American Economy under Leontief, Goldberg and Davis were spearheading a new corporate rush into vertical integration and monopoly control of not only American but global food supply. The scale was without precedent.

Goldberg and Davis and their colleagues at Harvard were at the forefront of educating a new generation of corporate managers who would be infected with the prospect of staggering profits in the effort to totally restructure the way Americans grew food to feed themselves and the world.

As US Government regulatory barriers fell under the drumbeat of deregulation, especially during the Presidency of Ronald Reagan, agribusiness rushed in to fill the regulation vacuum with its own private industry rules and standards. The standards were not set by all players, but typically rather by only the top four or five monopoly players.

The process led to a concentration and transformation of American agriculture that, by the late 1990's, was hardly recognizable anymore. Independent family farmers were driven off the land to make way for 'more efficient' giant corporate industrial farm businesses, known as Factory Farms or corporate agriculture. Those who stayed on the land were mostly forced to work for the big agribusiness firms as 'contract farmers.'

'Where have all the farmers gone?...'

As Government regulations, food safety standards and monopoly laws were systematically loosened, especially during the 1980's Reagan-Bush era, agribusiness began to transform the face of traditional American farming in ways so drastic as to be incomprehensible to ordinary consumers. Most people simply went to their local supermarket, took a nicely packed cut of beef or pork from the meat counter and thought they were still buying the product of the family farm.

What began to take place instead was the wholesale merger and consolidation, one-by-one, of American food production, out of the hands of family farmers and into giant corporate global concentrations. The farmer gradually became a contract employee responsible only for feeding and maintaining concentrations of thousands of animals in giant pens. He no longer owned the animals or the farm. He was effectively becoming like a feudal serf, indentured through huge debts, not to a Lord of the manor, but to a global multinational corporation such as Cargill, Archer Daniels Midland, Smithfield Foods or ConAgra.

For the new corporate agribusiness giants, the transformation was quite profitable. Family farmers' income for the vast majority of farm families plunged as they lost control of their market entirely to the agribusiness giants by the end of the 1990's. Their returns on equity had fallen from an average of 10% in the mid-1970's to only 2% a year, according to a study by the Senate Agriculture Committee. At the same time, the average annual return on stockholder equity for the industrialized food processing sector rose to 23% by 1999 from 13% in 1993.[17]

Hundreds of thousands of independent family farmers were forced out of business with the spread of agribusiness and its large operations. They simply couldn't compete. Traditional farming was by its nature labor intensive, while factory farming was capital intensive. Farmers who did manage to raise the money for animal confinement systems quickly discovered that the small savings in labor costs were not enough to cover the increasing costs of facilities, energy, caging, and drugs.

The increase in factory farms led to a decrease in the price independent farmers got for their animals, forcing thousands out of business. The number of US farmers dropped by 300,000 between 1979 and 1998.[18]

The number of hog farms in the US decreased from 600,000 to 157,000, while the number of hogs sold increased. Consolidation resulted in just 3 percent of US hog farms producing more than 50 percent of the hogs. A report to the US Secretary of Agriculture in the late 1990's described the enormous social costs of the destruction of the American family farm by agribusiness, as the economic

basis of entire rural communities collapsed and rural towns became ghost towns. The USDA report was buried.[19]

Another minority report led by Senator Tom Harkin, released just before the November 2004 US Presidential elections, and also buried, revealed that by then the degree of concentration and near-monopoly in the food and agriculture economy of the United States was impressive to say the least. The report found that the four largest beef packers controlled 84% of steer and heifer slaughter and 64% of hog slaughter. Four companies controlled 89% of the breakfast cereal market.

When Cargill acquired the grain handling operations of Continental Grain in 1998, that one company, Cargill controlled 40% of national grain elevator capacity. The US Justice Department approved the merger. Four large agro-chemical/seed companies--Monsanto, Novartis, Dow Chemical, and DuPont--control more than 75 percent of the nation's seed corn sales and 60 percent of soybean seed sales, at the same time that these companies control large shares of the agricultural chemical market. [20]

As traditional farmers abandoned their family land in droves during the 1980's and 1990's, agribusiness moved in to fill the void. The extent of the dramatic shift was largely hidden by clever government statistical accounting methods to make it appear that family farmers were simply getting larger, not that American farming had become giant corporate agribusiness.[21]

Municipalities, often desperate to attract jobs in regions of rural depression, offered the new agribusiness giants attractive concessions, tax benefits and others, to locate their industrial farms in the region, hoping to create new jobs and economic growth. The main growth created by the huge animal concentrations was fecal matter—animal waste in unimagined volumes.

What was termed a revolution in animal factory production began in the early 1980's. It was unpublicized for obvious reasons. Techniques of mass production and factory efficiency were introduced by the large corporations much as had been done in the auto industry assembly line production. Hogs, cattle and chickens were no longer produced on open fields or small farms where animals received individual attention from the farmer in event of illness or disease. The new production involved what was called 'confinement feeding' or what came to be called CAFOs—Concentrated Animal Feeding Operations. Their goal was maximum corporate profit at minimum cost—Shareholder Value was the Wall Street term. Gone was a system in which direct attention and care to the individual pig or cow or pasture land or crop soil mattered. Profit was the bottom line of the corporate agribusiness giant driving the transformation .

The CAFOs brought impressive concentrations of animal flesh into the smallest possible confinement space. From birth to slaughter, a factory pig, often weighing 500 to 600 pounds, would never leave a typical gestation cage of concrete and bars, a cell only as large as the animal. The animal would never be able to lie down, and as a result developed severe foot problems. The unnatural confinement created madness in the sow, including 'bar biting' and senseless chewing. Never in their entire life did they see daylight.

The US Department of Agriculture estimated that 10% of all animals confined in CAFOs died annually due to stress, disease and injury, and up to 28% for some types of chickens. The factory managers had no incentive to spend time or invest in individual animals, arguing that it was more 'cost effective' take some 'loss on inventory' rather than invest in proper veterinary care. Factory farming, as a result of generous campaign contributions to Congressmen, enjoyed an exempt status from normal laws against cruelty to animals.[22]

Cattle were packed into similar cages by the thousands. The London *Economist* magazine, in a May 2000 report, described the transformation of Iowa into the largest pig production center in America under factory farming. 'Take take a trip to 'hog heaven,' they wrote. 'This ten-mile stretch of countryside north of Ames, Iowa, produces almost a tenth of America's pork. But there is not an animal in sight. In massive metal sheds, up to 4,000 sows at a time are reared for slaughter, their diets carefully monitored, their waste regularly siphoned away, their keepers showered and be-gowned, like surgeons, to avoid infecting the herd.'

OMB Watch, an organization monitoring the role of US Government regulators in the area, reported the effects of the drastic reduction in Government rules on pollution and animal waste contamination from giant factory farm installations beginning during the Carter Presidency in the seventies.

Under the George W. Bush Administration, the Environmental Protection Agency, at the request of agribusiness, repealed a rule that held corporate livestock owners liable for damage caused by animal waste pollution. They noted that the factory farm owners often evaded responsibility by hiring contractors to raise their animals. The EPA also dropped a requirement that would have forced facilities to monitor groundwater for potential contamination by animal waste, which often seeped into the earth, leaving communities vulnerable to potentially dangerous drinking water supplies. The EPA had refused to change the allowed levels of which livestock operations met their definition of CAFO with attendant pollution limits despite repeated lawsuits. [23]

Because of the huge scale of the CAFOs or Factory Farms, animal waste and pollution of ground water was no minor affair. The huge animal farms housed

tens of thousands of cattle, pigs or chickens in small concentrations, hence the name, CAFO. It was estimated that the factory farms produced more than 130 times the waste that humans did, or some ***2.7 trillion pounds of animal waste*** a year. (emphasis added). That waste would then be channelled into enormous 'lagoons' that often leaked, ruptured or overflowed -- killing fish and other marine life, spreading disease and contaminating community drinking water supplies. The CAFO farms also routinely over-applied liquid waste to land areas, known as 'sprayfields,' causing it to run into waterways. 'Water contaminated by animal manure contributes to human diseases such as acute gastroenteritis, fever, kidney failure, and even death,' according to a 2005 study by NRDC.

Among the findings documented by the NRDC study were some alarming consequences to the cartelization of US agribusiness. They documented that in 1996 the US Government's Centers for Disease Control established a link between spontaneous abortions and high nitrate levels in Indiana drinking water wells located close to animal feedlots. As well, the high levels of nitrates in drinking water also increase the risk of methemoglobinemia, or 'blue-baby syndrome,' which can kill infants. Further, animal waste contains disease-causing pathogens, such as Salmonella, E. coli, Cryptosporidium, and fecal coliform, which can be 10 to 100 times more concentrated than in human waste. More than 40 diseases can be transferred to humans through manure. [24]

Typically, the corporations running the CAFOs would hire illegal immigrants at dirt low wages to deal with the huge waste concentrations, channelling it into vast 'lagoons' which often ruptured or overflowed, killing fish and contaminating drinking water supplies.[25]

By the end of the 1990's, factory farming had made agriculture into the United States' largest general source of water pollution. One study showed that a growing hog produced two to four times as much waste as a human and a milk cow the waste of 24 people. Spread over large fields in a traditional family farm, such waste had never been a serious ecological problem. Concentrated into industrial centers of maximum animal density per square foot, it created staggering new environmental and health hazards. Because of the financial muscle of the giant corporate agribusiness farms, the Government catered to their needs to maximize profits, ignoring their legislative mandate to guard public health.

To deal with the large manure problem the CAFOs typically would build earth pits to hold tens of millions of gallons of festering manure with an estimated 'pollution strength' 160 times greater than human sewage. Putrid manure and urine waste contaminated countless streams and ground water sources across the United States.

In California's Central Valley, giant mega-dairy CAFOs, with a total of 900,000 dairy cows, leaked fecal matter into the ground water, pushing nitrate levels of drinking water up 400%. The waste produced by the animals was equivalent to that of 21 million people.[26]

Not only waste, but consumption of drugs, especially antibiotics to keep diseases under control in the concentrated breeding spaces, became staggering. By the end of the 1990's the largest users of antibiotics and similar drugs from the large pharmaceutical firms were not humans, but animals, who consumed 70% of all pharmaceutical antibiotics.[27] The big pharmaceutical industry was becoming an integral part of the agribusiness chain.

In 1954, just as Harvard's Goldberg and Davis were developing their ideas on agribusiness, American farmers used about 500,000 pounds of antibiotics a year raising food animals. By the year 2005, it had increased to 40 million pounds, an eighty-fold rise. And some 80% of the antibiotics were poured directly into the animal feed to make the animals grow faster. Penicillin and tetracycline were the most commonly used antibiotics on the factory farms.

One result was the evolution of new strains of virulent bacteria appearing in humans and resistant to antibiotics. The Center for Disease Control and the USDA reported that the spread of food-related disease in humans resulting from eating meat pumped with antibiotics and other substances was 'epidemic.' Most of the food-related diseases were caused by contamination of the food, milk or water from animal fecal matter.[28]

The ability for corporations to merge and vertically integrate created a corporate concentration never before seen in agriculture. By the end of the 1990's, four large corporations—Tyson, Cargill, Swift and National Beef Packing—controlled 84% of all beef packing in the United States. Four corporations—Smithfield Foods, Tyson, Swift and Hormel—controlled 64% of all pig packing. Cargill, ADM and Bunge controlled 71% of all soybean crushing, and Cargill, ADM and ConAgra controlled 63% of all flour milling. Two GMO giants, Monsanto and Pioneer-HiBred of Dupont controlled 60% of the US corn and soybean seed market, which consisted entirely of patented Genetically Modified seeds. The ten largest food retailing corporations, led by Wal-Mart, controlled a total global market of $649 billion by 2002.[29]

By the beginning of the new millennium, corporate agribusiness had vertically integrated into a concentration of market power never before experienced even in the trust heyday of the early 1920's. Agribusiness as a sector had become the second most profitable industry in America next to pharmaceuticals, with annual

domestic sales of well over $400 billion.[30] And the next phase was clearly mergers between the pharmaceutical giants and the agribusiness giants.

It was not surprising that the Pentagon's National Defense University, on the eve of the 2003 Iraq war, issued a paper declaring, 'Agribusiness is to the United States what oil is to the Middle East.'[31] Agribusiness had become a strategic weapon in the arsenal of the world's only Superpower.

The giant factory farms also destroyed the viability of traditional farming, killing an estimated three traditional farm jobs for every new, often low-paid, job it created. Shareholder Value had come to American agriculture with a vengeance, thanks to the 'pioneering' work of Ray Goldberg, John H. Davis and Wassily Leontief, and the funding of the Rockefeller Foundation back in the 1950's.

The United States Department of Agriculture had been established in 1862 by President Abraham Lincoln who called it 'the peoples' department.' Its original mandate had been to serve farmers and their families, about half the population of the country at the time. By the end of the 20th Century, the number of family farmers had been decimated. The traditional farmer had become a near extinct species under the driving pressures of agribusiness and its power to control entire sectors through vertical integration.

The US Department of Agriculture or USDA had been transformed into a lobby for agribusiness. Between 1995 and 2003 American taxpayers paid over $100 billion for USDA crop subsidies. The subsidies went not to struggling family farmers, however. They went overwhelmingly to the giant new agribusiness operators, corporate farms, including millions to David Rockefeller, the ardent advocate of less government subsidies.[32] Some ten percent of the largest farm groups received 72% of USDA crop subsidies.

More worrisome was the fact that the US Government itself admitted in published reports that its statutory oversight in the health and safety of the nation's meatpacking and processing industry was worse than inadequate. In January 2006, the USDA issued the following report, apparently only in required response to a lone Senator who asked: 'The Grain Inspection, Packers and Stockyards Administration has not established an adequate control structure and environment that allows the agency to oversee and manage its investigative activities for the Packers and Stockyards Programs (P&SP)…P&SP's tracking system could not be relied upon, competition and complex investigations were not being performed, and timely action was not being taken on issues that impact day-to-day activities. These material weaknesses should be reported in the agency's next FMFIA report because they represent essential activities for administering and enforcing the Packers and Stockyards Act of 1921 (Act). The

Act prohibits unfair, unjustly discriminatory, and deceptive acts and practices, including certain anti-competitive practices. We also found that the agency has not taken sufficient actions to strengthen operations in response to findings previously reported by the Office of Inspector General (OIG) in February 1997 and the Government Accountability Office (GAO) in September 2000. Our current work was initiated in response to concerns raised by a US Senator in April 2005.' The last statement implied they would not have undertaken such an inquiry on their own. [33]

It was no accident. The powerful Washington lobbyists of agribusiness drafted the Farm Bills that dispersed the funds, and influenced which policies got enforced, as well as the appointment of agribusiness-friendly bureaucrats and officials to enforce them. The 1921 Packers and Stockyards Act had become an empty construct, honored in its breach.

The now powerful forces of the agribusiness lobby scored a major victory in 1996 with passage of the new Farm Bill by the US Congress. US farm policy from 1933 to then, as explicitly stated in the Agricultural Adjustment Act of 1938, during the Great Depression, granted authority to the Secretary of Agriculture to attempt to balance demand and supply, by idling land, implementing commodity storage programs, establishing marketing quotas for some crops and to encouraging exports of commodities including food relief programs and sales of farm commodities for soft currencies. However, after 1996, the Secretary's authorities were suspended, if not repealed, in the 1996 and 2002 farm bills.

Before 1996 sharp price swings were moderated through the use of storage programs and land idling. The costs for the stabilization were relatively modest compared with the costs incurred after 1997. The 1996 farm bill, enacted during a brief period of economic euphoria in 1996, temporarily stripped the Secretary of Agriculture of all authority to manage inventories and set the stage for all-out production of the major program crops. That authority to idle resources, which every other CEO has authority to do when inventories become excessive, was swept away despite overwhelming evidence that agriculture's capacity to produce has consistently exceeded the capacity of markets to absorb the production without resorting to unacceptably low prices. With the transition away from government programs, it was expected that market forces would appropriately throttle resource use in agriculture. The results were a huge boon for agribusiness in their pursuit of ever-larger land at a cheap price. For the family farmer, the price was staggering.

As a report done by Iowa State University concluded, 'Prices declined because the 1996 farm bill no longer authorized the government to idle land to balance demand and supply. Production decisions were left to the market…When no

land is idled, production increases, crop prices fall, and land values come under pressure until there is less profitability for crop production on the least productive land. The market squeezes out the thinner soils and steeper slopes, the higher per-unit cost of production areas. This land then transitions…to another crop or to grazing land.' [34]

Few Americans had the slightest idea of what was going on. By the mid-decade of the new century, however, general level of public health, epidemic-scale incidence of obesity, allergies, diseases once rare in the general population such as salmonella poisioning, e-coli, all were becoming every day events.

The stage was set by the end of the 1990's for what Ray Goldberg termed a transformation that he described as 'changing our global economy and society more dramatically than any other single event in the history of mankind.'[35]

By 1998, Goldberg was 77 years old and extremely active, sitting on the boards of numerous large agribusiness companies such as ADM and Smithfield Foods and advising the World Bank on agribusiness for the developing world. That year, he organized a new university-wide research group at Harvard to examine how the genetic revolution would affect the global food system.

The creator of agribusiness was integrating the gene revolution into the agribusiness revolution as the next phase. He mapped out the transformation of world food consolidation thirty years into the future.

His study calculated that 'the traditional agribusiness system, without the pharmaceutical, health and life science segments will be an $8 trillion global industry by 2028. The farming sector value added,' he went on, 'will have shrunk from 32% in 1950 to 10%...Whereas food processing and distribution accounted for half of 1950's value added, it will account for over 80% in 2028.'[36] For Goldberg, the farmer would become a tiny player in the giant global chain.

Goldberg calculated the addition of entire new sectors created by the latest developments in genetic engineering, including GMO creation of pharmaceutical drugs from genetically-engineered plants, which he called 'the agri-ceutical system.' He declared, 'The addition of life science (biotechnology-ed.) participants in the new agri-ceutical system will increase total value added in 2028 to over $15 trillion and the farmers' share will shrink even further to 7%.' He proclaimed, enthusiastically, 'the genetic revolution is leading to an industrial convergence of food, health, medicine, fiber and energy businesses.'[37]

He might have added that all this was virtually without government regulation or scientific supervision by neutral scientific research organizations. How the gene

revolution evolved, would again find the Rockefeller Foundation in a central role. From Green Revolution to Gene Revolution, the foundation was in the center of developing the strategy and means for transforming how the planet fed itself, or didn’t feed itself.

Endnotes:

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[30] Ray Goldberg, , '*The Genetic Revolution: Transforming our Industry, Its Institutions, and Its Functions*,' address to The International Food and Agribusiness Management Association (IAMA). Chicago, June 26, 2000, pp.1-2.. Goldberg founded and headed the IAMA as well as holding seats on the boards of agribusiness giants Archer Daniels Midland, Smithfield Foods and DuPont Pioneer Hi-Bred. He practiced what he preached.
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