III. Another Angle on LaRouche's Science

JUNE 18, 1980

The Meaning of World-Market Parity Prices for Food

by Lyndon Hermyle LaRouche, Jr.

Issued by LaRouche as a 1980 Presidential Candidate in the Democratic Party, and published by Citizens for LaRouche, New York, N.Y.

Many Americans have been subjected to the myth which falsely asserts that cheap labor means lower unit-costs of production. We explore that myth here for the case of agricultural production.

Once we recognize that the net-profit component of true parity values for agricultural products is the margin of investment on which technological improvements in unit-cost of production depend, we begin to comprehend the fact that such net profits are not an amount in excess of the "true cost" of production.

If we are to maintain an adequate supply of food at stable prices, not only must the total investment in agricultural production increase, the average capital investment per acre will also be increased. It is investment in agricultural improvements per acre, including land improvements, equipment and ratio of energy-consumption per acre my agricultural production, which is key to reductions in the unit-costs in agricultural output.

Since the improvement of marginal land is more costly than maintenance of prime land, the tendency is for agricultural costs and prices to rise, unless costs are kept down by increased efficiencies of the sort which can be realized only through capital-intensive, energy-consuming forms of technological improvements. Therefore, a certain rate of net profit on agricultural products is required even simply to maintain the volumes and productivity of production.

If we, then, examine what appears to be cheap food production in other nations from this same standpoint, we immediately note the following fact. What rate of net profit do those countries require to bring their productivities up to U.S. standards over periods ranging from ten to fifty years (according to the relative backwardness of each such economy)? This calculation proves that the required amount of unit net profit for food production in those countries brings the true cost of that food production up to approximately U.S. parity-values!

This proof of parity-values for world food production also applies in the same way to all basic categories of commodities in the world market. The mathematical proof of this fact was developed by a joint product of the Fusion Energy Foundation (FEF) and the once-a-week *Executive Intelligence Review*.

The ABCs of Productivity

The basic, first measure of *productivity* is the average number of hours of productive labor to produce a fixed quantity of *tangible output* of goods of *competitive quality*.

If nations and firms of differing productivities for production of the same products are anticipated statistically, it is proven that *productivity increases in direct proportion in the amount of true depreciation of invested productive capital per average working-year of productive labor*—exactly as Treasury Secretary Alexander Hamilton proved in his 1791 Report to the Congress *On the Subject of Manufactures*.

This does not mean that we can use the figures for depreciation reported by currently prevailing standard tax-accounting practice. Current tax-accounting practice grossly understates the *true current replacement-*

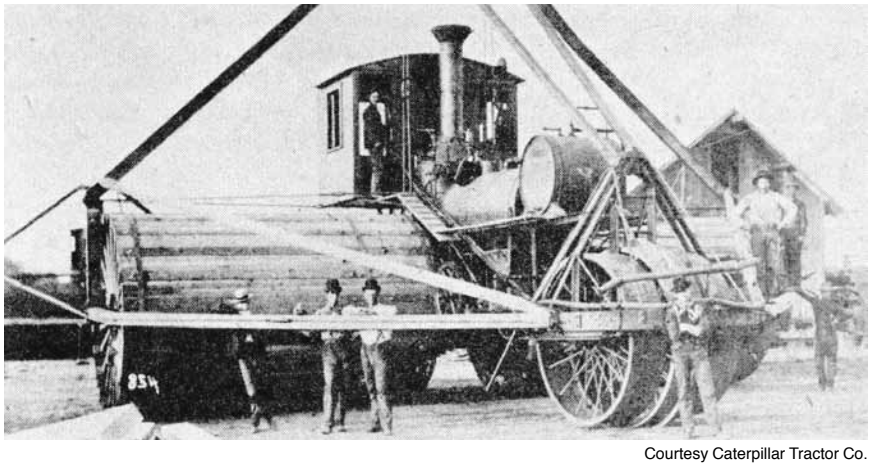
cost of productive capital being depreciated. We must use the price of the quality of capital goods which are *the competitive, improved substitute* for the capital goods being used up. The total depreciation (or amortization or depletion) allowed must total to an amount adequate to buy the up-to-date substitute for the kind of machine-tool or other productive capital being used up.

If we use the misleading, undervalued estimates of depreciation, amortization and depletion allowed by present, misguided tax-accounting practices, we do show that productivity correlates with levels of depreciation. However, those understated values for depreciation (and amortization and depletion) mean giving wrong direction to both investor's and government's policymaking in connection with both capital-replacement policies and tax policies. If we use correct figures for rates of depreciation, the proof that productivity correlates with depreciation not only proves the fact of the matter, but guides us to proper investment and tax-incentive policies.

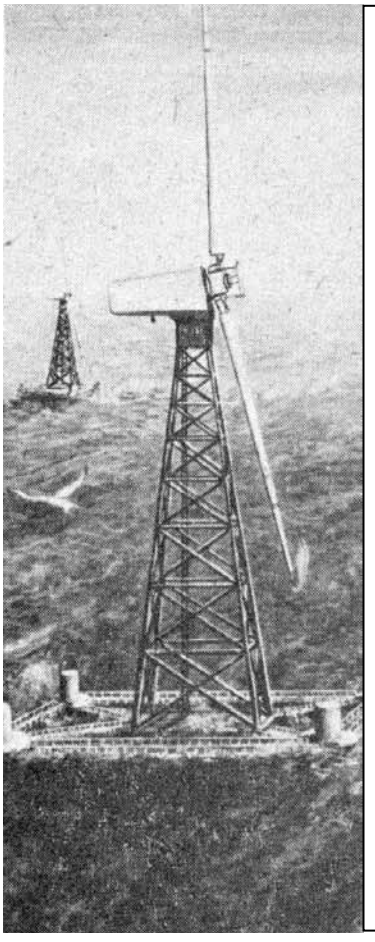
Depreciation corresponds to the level of investment in what Alexander Hamilton terms "artificial labor." "Artificial labor" means those machines and other devices which supplement human muscle-power with the useful application of the energy produced by hydroelectric, steam, and other production of power for industry and farms. The greater the ratio of such energy in the form of "artificial labor" to human muscle-power, the greater the productivity of labor, and the better the possible quality of the product being produced.

So, as computer analysis proves conclusively, the levels of true depreciation of an economy, a section of industry, and particular enterprises,

The Agriculture Department, established by President Abraham Lincoln on May 15, 1862, has traditionally promoted high-technology agriculture as "the foundation of manufacture and commerce." Above, top: A team of 33 horses cutting, threshing, and sacking wheat in Walla Walla, Wash., 1902. Below: A 41-ton tractor with wood-covered drive wheels, built in 1900 by the Best Manufacturing Co.



Courtesy Caterpillar Tractor Co.

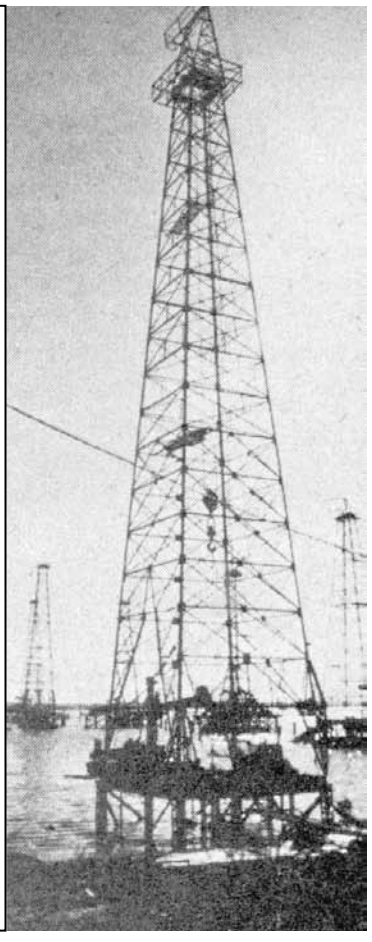


Energy Flux Density

Energy source	Power density (kilowatts/meter^2)
Solar—biomass	0.0001
Solar—earth surface	0.2
Solar—near solar orbit (5 million miles)	1,400
Fossil	10,000
Solar at sun surface	20,000
Fission	70,000
Fusion (early commercial)	70,000
Fusion (theoretical limit)	**trillions of megawatts**

Comparison of Delivered Electric Power

	Total energy costs (mills/kw-hr)	Total energy price (mills/kw-hr)	Capital investment (billions of $)
Oil	25.1	45.7	0.94
Coal	24.2	31.7	0.97
Coal gas	41.7	55.7	1.67
Light water reactor	27.8	28.5	1.16
Liquid metal fast breeder	33.7	33.9	1.43
Fusion	45.2	45.2	1.92
Solar collectors	490.0	490.0	20.9
Solar cells	680.0	680.0	28.9



Even the Department of Energy has to admit that windmills, such as those shown in this artist's drawing at left, are not economical. The table of energy flux-density shows why: Wind power (solar, at earth surface in the table) as an energy source has an insignificant power density compared with fossil fuel. At right, an oil rig.

correlate with increases in the amount of energy used for production per productive worker employed.

It is not sufficient merely to have more energy used per productive worker. The energy used must be produced for use in production at the equivalent of an increase in temperature of the energy-producing process. The proper term to cover all cases is *energy flux density*, the term which covers such units of measure of energy-intensity as temperature and voltage, and numerous other cases.

Energy flux-density is measured, in first estimate, as the number of calories passing through a standard unit of cross sectional area of the energy-producing process, such as the square-centimeter or square foot.

For example, conventional fossil-fuel and nuclear energy production is about ten thousand times more energy-dense than solar energy, and about a million times more energy-dense than use of the solar biomass cycle for energy production. Potential cost of energy correlates inversely with energy flux-density. That is, solar energy is intrinsically ten thousand times less efficient in total effects than nuclear-fission energy-production today, whereas the solar-biomass programs are about a million times less efficient, overall, than nuclear-fission programs.

"Overall efficiency" is a combined matter of direct costs and indirect costs, such as effects on the biosphere. Solar and solar biomass programs are ten to a hundred times more costly than conventional energy production, and when the added costs are compounded with indirect costs to the biosphere, solar-biomass programs are about one million times more costly to humanity, overall, than conventional fossil or nuclear production of energy.

Since there has been so much lying propaganda put out in favor of "solar" and solar-biomass" policies under the Carter Administration, a few words of rebuttal to that mass of lies must be added here.

The following table compares the apparently direct

costs of production of various modes of energy-production, comparing energy flux-densities of those modes with the capital factors of energy production as such. There, we see that the direct costs of capital for solar and solar-biomass energy-production are between ten and one hundred times as much as for conventional fossil fuel and fission-nuclear energy production.

The Case of Brazil

Now, by what reasoning do we prove that the combined direct and indirect costs of low-grade solar and solar-biomass program range between 10,000 and 1,000,000 times those of fossil and nuclear energy programs?

Let us introduce this point by considering the case of Brazil.

In Brazil, under orders from international bankers and U.S. administrations, that country has reduced its use of petroleum, coal and nuclear energy development by relying on cutting down the Amazon rain-forests. Under this program, charcoal, instead of coal, has been used to make steel—back to the sixteenth century's energy technologies!

Under this program over 100,000 square miles of the Amazon rain-forest were destroyed for the combined purposes of attempting to create labor-intensive agriculture and burning of wood as a basic energy-source. As history should have warned any sensible person, the labor-intensive exploitation of rain-forest regions for agriculture quickly transformed the leached-out soil into an untillable mineral hard-pan called laterite. That happened, as should have been foreseen. It is also the case, that major weather systems of the world are crated and maintained by large-scale transpiration of moisture from plants. Cutting down the amazon shifted the Amazon high out into the Atlantic, and produced a worldwide chain-reaction among weather systems, with disastrous effects for Brazil and numerous other regions of the world.

It is that sort of secondary effect which points one's attention to the massive factor of indirect costs of resorting to such lunatic energy policies as solar or solar-biomass.

The reason most laymen, as well as inadequately educated engineers and others, might fall into the delusion of tolerating such programs as solar or solar-biomass is that they are ignorant of the magnitudes of the kinds of secondary costs we have illustrated through citing the Amazon case, and have no knowledge of the special principles of energy-economy which must be applied to living systems, such as the biosphere generally, or the energetics of human society most emphatically.

In living systems, it is utterly incompetent to limit our attention merely to the raw energy-throughput. All living systems' energetics are based on the ratio of what is termed "free energy" to total energy throughput. In the aging of human organs and tissues, one of whose byproducts is cancer, the energy-characteristic of tissue degradation involved is a drop in the potassium-related ATP production of free energy within the cell. Similarly, all studies of the biosphere, and human societies as energy-systems, must concentrate on the sheer energy flux density of energy-throughput as a whole.

In living systems, our emphasis is on not only the rate of free energy, but the rate of increase of free energy as we proceed from lower-ranking living systems to more highly-developed living processes. The rate of increase of the free energy ratio so defined is known by the technical term "negentropy."

In all living systems, human society most emphatically, the quantity of energetics to be measured is not some scalar amount of raw energy throughput, but the negentropy of the system, and changes in the negentropy of the system.

Therefore, the indirect costs of using solar and solar-biomass energy programs are properly measured as decreases in the negentropy of both the biosphere generally, and human society in particular. There is a special case of such indirect costs, as which the negentropy of the biosphere as a whole ceases overall, such that a vector of entropy, or devolution of living systems occurs. In this state of devolution of the biosphere, some forms of life continue to maintain at lest a limited energy-prosperity by evolving as dominant parasites and saprophytes destroying higher forms of organisms. This correlates with the outbreak of new kinds of pandemics in the forms of pests, human pandemics, animal pandemics, and pandemics of vegetable life, termed "sylvatics."

It happens that the world's weather-systems are a byproduct of relatively negentropic processes within the biosphere generally. So, the devolution of the biosphere of Brazil by lunatic solar-biomass economic

doctrines led to a degradation of the world's weather-systems.

A similar case is found in Africa's Sahel. The Sahel is the potential breadbasket for all of Africa, located on the south of the Sahara region. The Sahel has been ruined as part of a long-term process of desertification of northern African regions caused by combined labor-intensive practices of crude agriculture and overgrazing. With the reversal of those labor-intensive policies, by introduction of massive irrigation, fertilizers, and promotion of shrubbery along the northern rim of the Sahel, the Sahel could be brought to become of the great grain-producing areas of the world in about a generation. The transpiration of moisture from energy-dense crop production in that region would restore the weather-system bringing increased rainfall to the region.

Whenever we remove organic vegetable and animal waste from the biosphere, we lower the energy flux-density and negentropy of the biosphere. We must add relatively high-energy inputs to the soil to compensate for this, in the form of fertilizers and essential trace-elements, the latter being the essential catalysts of negentropic energy-production within the cell, as potassium is crucial to push out excessive sodium to maintain the ATP energy-production in the cell of animal tissue.

The way in which the biosphere maintains its vitality is through, chiefly, the role of chlorophyll and related processes in converting sunlight from "inorganic" into negentropic forms of organization of energy. This provides the basis for a human-habitable biosphere (oxygen replenishment, carbon-dioxide reduction, stable weather systems), and also supplies the basis for the essential food-chain of other plants, animal life, and human beings.

Thus, although solar and solar-biomass programs of energy production are lunacy because of the extremely low energy flux density of such modes, the indirect costs of such lunacy are far greater than the direct costs. Solar energy is indispensable to the biosphere's energy cycle because of the conversion of that energy into negentropy, fueling the planet's entire life-cycle. Whenever any government is criminally foolish enough to divert large parts of that flow of energy in the forms of solar or solar-biomass withdrawals from the biosphere's needs, the devolution of the preconditions for continued human life must result.

The indirect costs of such lunatic programs as solar and solar-biomass for society is to be measured as the cost to society of replacing the negentropy destroyed by the absurd solar and solar-biomass program's effects.

Similar, as the LaRouche-Reimann computer-based studies of the world and national economies proves conclusively, the reasons for the need to apply Riemannian physics (the most advanced physics in the world today) to analyze and forecast economic effects is that the economies of human society are rules, in he final analysis, by the same principles of negentropy encountered in management of the biosphere.

The portion of net profit invested to effect capital-intensive increases in the technology of production, the source of all advances in productivity, appears in the energy-accounts of society as a the portion of totally energy-throughput corresponding to free energy. The investment of that free energy in the indispensable, capital-intensive way, results in increases in the true depreciation per person productively employed. It is net profit which enables us to increase the ratio of true depreciation still further, as the conversion of free energy (profit) converted into higher levels of productive capital.

The density of true depreciation in an economy, or principal sub-sector of an economy, is equivalent, in broad terms, to an increase in the temperature of an energy-producing system, the higher the operating temperature, the greater potential efficiency of the system. In the case of an economy, the higher the "temperature-equivalent" in the form of true, energy-dense depreciation-levels, the greater the potential productivity of that economy.

In other words, the investable net profits of agricultural and industrial producers is the true first cost of a health economy … on condition that those profits are competently invested in technological improvements in the productive system.

Therefore, government under the American System protects the level of profits of technologically progressive free enterprise in agriculture and industry, by providing protected orderly markets of the sort required to maintain such profit levels for progressive firms and farms, and uses the tax policies of the government to tax heavily non-productive uses of profits while providing tax-benefits for job creating productive investment in advanced technology.

It is true that the technological improvements lessen the amount of direct labor required to produce any fixed quantity of product, but the expansion in levels of production of capital goods absorbs those displaced from one industry into expanded production of such capital goods.

Tax & Credit Policies

True, under Jefferson, Jackson, the effects of the 1879 Specie Resumption Act, and the Federal Reserve System, the United States has drifted far away from the principles of the founding fathers' American System of political-economy. Today, the United States no longer has its own national currency—a group of international private bankers controlling the Federal Reserve System owns our currency, and more or less our federal, state and local governments as well. Our public as well as our private debts are chiefly owned by the same supranational private banking interests, who use control of those debts to dictate the policies of the federal, as well as state, and local, governments. Our republic has surrendered all efficient self-government over those aspects of policy which most efficiently determine the conditions of life and opportunities for the individual citizen and private entrepreneurs.

Through the British doctrine of "free trade," anarchic competition and international bankers' control of our nation's principal supplies of credit, drives the profits of our producers down to sub-marginal levels. "Free enterprise" as established by the founding fathers is being wiped out by Professor Milton Friedman's "cannibalistic competition" doctrines, doctrines which have led to Nazi-like dictatorship in Chile and which Professor Friedman proudly announces he has copied from the policies of Nazi Finance Minister Hjalmar Schacht, plus the policies of the world's central drug-running entrepot of Hong Kong. This is what the Nazi-like Friedman and his foolish admirers term the "economics of freedom"!

Under the American System, it is the obligation of the federal government to establish a system of national banking, which issues a government-regulated, gold-supported currency in the form of United States notes. These notes are not passed out like mimeographed leaflets on street corners; they are loaned through the local private banks of the bank. Those banks using borrower's equity as a margin of security, loan deposited savings to worthy borrowers. The national banking system then makes available supplementary medium- to long-term lending funds by taking as much as sixty percent of the total loan given against security—against the account of the increase in national tangible wealth effects by prudent loans.

By gearing the additional issues of U.S. notes to the amounts which local bankers consider worth lending to worthy borrowers in terms of their own private-banking deposits loaned, the currency policies of federal national banking limit the currency issued to exactly the amount which investors and bankers can and will employ to make full productive use of otherwise unsold capital goods and otherwise idled capital-goods producing capacities.

Since such loans through the private banks to worthy borrowers pledging their own equity are fully secured, and since improvements to productivity cheapen the costs of production, proper government issuance of U.S. notes produces a *deflationary* trend in commodity prices and a rapidly expanding economy (and productive employment) at the same time.

By shaping tax policies to encourage savings by ordinary households, and to provide tax-incentives for productive investments, with tax-penalties for the incomes of wastrels, the laboring and producing portions of our citizenry prospers, while those citizens inclined to investments in Sodom and Gomorrah become the targets of emphasis for the federal tax-gatherers.

In that way we shape a national economy in which the individual citizens live modestly but well, putting the savings in excess of household-consumption requirements into those productive investments which cause the national economy to continue the cycle of upward-moving prosperity.

Let us apply these principles to the special case of designing a proper inheritance tax-policy for the farms of independent owner-operated agriculture.

Clearly, unless we are a national of lunatics, we do not with to let inheritance-taxes liquidate our independent owner-operated farmer strata. Therefore, the inheritance-tax policy should not touch the tangible assets of agriculture of the farm in transmission by deed or will to another farmer. If the heir were to attempt to liquidate the farm, then the inheritance-tax should fall upon the heir under that condition and at that point.

The same principles ought to apply, obviously, to other essential forms of privately-owned or closely

held corporate producers. It is wasteful spending, not productive investment, which should be taxed heavily. As long as a farm's assets are "tied up" in productive capital which employs productive labor producing wealth adding to the national total, it is in the national interest to keep that entity intact. If the management and ownership lead the firm into bankruptcy, then the proceeds of the sale become taxable.

The management of that approach to inheritance taxation may be slightly complicated in some categories, in the case of the independent owner-operated farm, the principle and its proper simple sort of application are clear.

That illustrates the way in which maintenance of parity values through orderly marketing approaches combines with proper credit and tax policies to ensure that the net profits fostered by such policies are either invested as intended or become subject to the corrective action of relatively high rates of taxation.

This is not a "subsidy" for obsolescence or incompetence. The non-productive producer, the mismanager will eliminate himself by failing to keep his costs in line with those of the competitive producers on whose performance competitive standards of cost are based in calculating parity values. Now, need we engage ourselves in "land bank" and related sorts of programs. There is a shortage of food on the world market relative to human needs, and marginal production in agriculture is not profitable, even at parity values.

The federal government's role must be this. The government must negotiate treaty-agreements concerning world-market parity and projected volumes with nations. The government must secure treaty agreements covering three to give year volumes, prices and credit-arrangements for marketing of U.S. agricultural products. At that point, the State Department's role in the matter diminishes, and the Agriculture and Commerce Department's role predominates. The Agriculture Department, working in conjunction with the Export-Import Bank AIDS the marketing of exports, and the two intervene jointly into domestic markets to keep price movements orderly with the predetermined projections for an orderly market at parity values.

Through cooperation with other nations in promoting programs of world market parity to encourage improvements in agricultural output and productivity relative to growing world food needs, medium-term, three-to-five-year share of market and private treaty agreements are negotiated, and long-term projections of estimated market and price are continually updated as encouragements for long-term investments.

Orderly market, parity, credit and tax policies thus represent a total package by which the federal government fosters the private initiative of the owner-operator farms with the minimal intrusion into the private sector. By using the Agricultural Extension Service and complementary channels of consultation with owner-operator farms, the development of accurate marketing commitments, worked out by farmers in a way needed for individual farmer's decisions on agricultural producer programs, will accomplish more than all the bureaucratic sorts of regulation. Accurate information, exchanged between government and farms, and government cooperation to maintain orderly markets in keeping with such accurate estimates, is the approach consistent with the American System.

The government's interventions into markets will involve maintenance of adequate strategic reserves, both for reserve emergency needs and to aid in balancing our poorer and better crop-years. Otherwise, government intervention should emphasize export requirements, accelerating and delaying government action in the manner of a grain handler to keep the flow at approximately parity values.

The Case of Mexico

Presently, Mexico is both a food-exporter and a food-importer. Mexico's more developed agriculture dumps food and dumping prices on the world market, whereas the petroleum revenues of Mexico in effect subsidize a poor diet of relatively high-priced imported food, reflecting the presently poor condition of the Mexican farms producing for domestic consumption.

Mexico's present policy is to increase its petroleum production to whatever levels are required to purchase high-technology capital-goods exports. The objective of this program is to reduce the rural population of Mexico to about twenty percent of the labor force by the year 2000, shifting population to new, industrial cities along the coasts—where advantages of water-borne build freight mean substantial economies. Mexico has potentially about as much petroleum as Saudi Arabia, so that U.S. participation in the Mexico high-technology capital-goods import market

USDA

The greater the ratio of energy input in the form of "artificial labor" to human muscle power, the greater the productivity of labor and the better the possible quality of the product being produced. Here, Mexican peasants use muscle power in a "food for work" program.

is most impressive . . . if we had a sane policy toward Mexico at this time, which the Carter Administration does not.

Mexico's domestic food-production clearly requires massive rates of infusion of capital, which can not be accomplished at required rates without food-parity levels corresponding to parity levels properly determined for U.S. agricultural exports. Otherwise, the projected first-generation goals of advancement of agricultural productivity in Mexico could not be reached. It is clearly in the interest of the United States, as well as of Mexico, to effect trade and treaty agreements through which the United States participates in aiding the projected transformation of Mexico.

Given the wretched levels of income of populations of many developing nations, the governments of those nations would probably be well-advised to adopt a policy of declining subsidies of food consumption, to absorb the difference between parity prices and allocable portions of urban food consumers' incomes among poorer strata. Mexico is one nation which has the internal institutional mechanisms able to undertake such measures.

In all such cases of developing nations, the rate at which average incomes of the population can be raised is a function of the total care of productive capital formation in those nations. Mexico is potentially and actually in a most advantageous position in this respect.

Therefore, the marketing of U.S. agricultural exports into developing nations generally is tied, in terms of capital factors, to the general rate of overall capital-investment in those same nations. This means that the most efficient approach to organization of credit for agricultural exports is to include the financing of the good component of wages of productive labor as an included feature of the total financing of high grain investments packages for those same nations.

The case of Egypt merits comment.

Egypt's population, rising from about 39 millions, includes a most industrious category of Egyptian farmers. It is said that if a small drift of silt rises above the waters of the Nile, the Egyptian farmer will promptly develop a crop on that spot. The major labor force problem of Egypt is a semi-literate or illiterate urban slum population, which should not be returned to the land, but should be employed in new industrial cities in new industries of the sort mapped out for Egypt by West German experts.

If we defeat the problems of salination in parts of the old course of the Nile, that course could be opened up to the effect of substantially increasing the total arable land of the country, expanding agricultural production, while upgrading the so industrious Egyptian farmer, taking a growing chunk out of Egypt's dependency upon foreign food imports. This project is tied to the Qattara Depression power-project, a suitable adjunct to the creation of new, export-oriented industrial centers, in which to absorb unemployed and marginally employed from centers such as Cairo and Alexandria.

In brief, the United States should be involved in a total package of development for Egypt, as part of which credit for Egypt's required U.S. agricultural imports, especially over the medium term, in beef and dairy products will lead, while grain may tend to dominate in the near-term volumes.

As for Egyptian agriculture itself, it represent the

same sort of need for adequate parity values of product as we have indicated for the case of Mexico.

Beef and Dairy

One of the great nutritional problems of the world today is the lasting biological brain-damage and lack of immunological potentials associated with deficiencies of animal protein in diets, most emphatically in the diets of pregnant and nursing mothers and children. While some parts of the world have religious taboos against eating beef, U.S. beef and dairy exports are the leading boom-export commodities of our agriculture for a long time to come. We can promote fish farms, pork production, chicken farms, and other animal protein programs—it will be a long time before other nations would approach the efficiency and quality of our large-scale beef and dairy output.

So, for the near-term, increases in grain exports will prepare the way for gradual diversion of much of increased grain production capacity into feeding of livestock. We must build up rapidly our beef and dairy herds, by encouraging ranchers and farmers to increase the ratio of capital investment in herds relative to volumes of beef and dairy-products produced. In all essential categories of agricultural production, policies must recognize that it is the total herd-size, the total acreage being maintained for current and future production which is the true capital cost of agriculture, not simply the direct costs involved in current output.

It is the same in the developing nations, where the costs of developing agricultural capacities, not fruitful in the immediate short-term measure of output-productivity, are a crucial part of achieving tomorrow's target-levels of productivity and volumes.

The Nuclear-Energy Parallel

At present, a watt of electrical-energy production capacity from nuclear fission production costs about $1.00. A present state-of-the-art fission-energy plant requires, under sensible arrangements, about four to four-and-a-half years to construct. The United States will require about 2,000 gigawatts of added nuclear energy, for both electrical energy and for production of synthetic chemical fuels, by the year 2000. That is about $2 trillion, all of which construction must be started by the year 1995.

This means, relative to fossil-fuel and other modes of such energy production, a substantial reduction in costs per watt, and a massive reduction in even the direct costs of energy over the solar, solar-biomass, and Nazi-modelled synfuel programs proposed by the Carter Administration.

The arguments against nuclear energy are all fraudulent, excepting the warning that we must tighten up security to prevent any sympathizers of Barry Commoner, Ralph Nader and Jane Fonda from bringing their potential saboteurs anywhere within the vicinity of the nuclear cycle.

Waste disposal is not a problem. 2,000 gigawatts of nuclear energy means about 2,000 tons of nuclear waste a year overall. Of this, about ninety-five percent goes directly back into production, so that we have approximately at net five percent of 2,000 tons—100 tons—as annual waste with which to concern ourselves. Nearly all of that 100 tons is disposable immediately as fuel for either a fission breeder reactor or a fission-fusion hybrid reactor. Any waste we choose to destroy can be so destroyed by known methods of bombardment. "Look mom, no waste!"

This nuclear-energy development, at an average rate of 100 gigawatts—$100 billions—a year over the twenty year period, is a very highly security investment. Therefore, the Federal government should provide up to 70% of the total credit *for construction loans*, with private banks and utilities providing 30% combined equity and loans. This should be financed at between $% and %5 per annum, with comparable effects on the average parity value of a watt of sold energy.

Misguided and malicious fools protest against such "loading" of investment factors of energy capacity cost into standard rates. In consequence of the lack of nuclear energy, prices per watt must zoom through shifts to alternative fossil programs under conditions of zooming costs of fossil fuels. While coal can be used economically close to region of production, and is environmentally acceptable using new, high stack plants, use of expanded petroleum-consumption for electrical-power generation is broadly contraindicated by considerations of rising price at this time. So, the foolish and malicious objection of including new energy-production investment charges in rates may appear to lower rates, but actually sense rates zooming—while also savagely undercutting private and tax revenues, as well as productive employment in the region affected.

The notion that less than parity prices mean cheaper food or cheaper electrical energy is the delusion of a fool who lives only for the next moment, and sees nothing of the consequences of his foolish decision for the year or so immediately ahead.