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Rebuilding U.S. Rail System Is Top Priority

by Richard Freeman

The breakdown of the U.S. rail transportation system, for both passengers and freight, threatens the operation of the American physical economy and the integrity of the United States as a nation. A top priority reconstruction and overhauling of the rail system, that restores its functioning as a continental system extending into every population and industrial center, is urgent.

An examination of the working of the U.S. rail system, shows that part of it no longer exists, and what does still exists is run down. On the freight rail side, for Class I rail companies (the biggest ones), comparing 1980 to 2000, forty percent of the track has been contracted, 27% of the locomotives have been furloughed, and 63% of the labor force has been fired. Putting haulage of coal to one side, the Class I rail companies' transport of all other goods—the vast majority in an economy, ranging from grain, to iron, to chemicals—has fallen 45% on a per-household basis, compared to the 1970 level.

The passenger side of the rail grid is in the same condition. Amtrak, the largest inter-city passenger rail carrier, transporting nearly four-fifths of inter-city passengers, has been forced to live from month to month. Amtrak requested of the U.S. government, $1.9 billion for fiscal year 2003, for operations, maintenance, and minimal capital investment. The Conservative Revolutionaries in the House and President Bush jointly said that Amtrak should receive $521 million. Senator McCain and the *Wall Street Journal* have both demanded the busting up of Amtrak, which would mean closing down already inadequate service to many parts of the country.

The breakdown has generated deadly effects. On April 18, Amtrak's Auto Train out of Orlando, Florida derailed, tumbling 14 cars across the track, killing four and injuring 150. The track is owned and maintained by CSX Corporation. Five days later, in Placentia, California, a freight train plowed into a Metrolink commuter train, killing two and injuring 260 people. The Federal Railroad Administration has reported that in 2000, there were 2,059 derailments, already an increase of 18% from 1997, and a pace of 40 derailments per week.

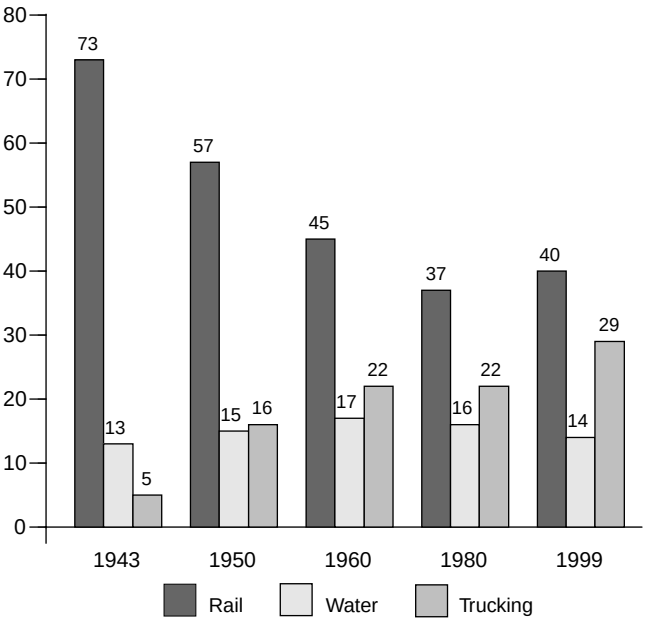
Rail- and Nation-Building

The inability to move people and goods from one part of the country to another in a timely and safe fashion, is a marker of a general breakdown of the economy, and is the product of at least 30 years' deindustrialization policies. The link between rail-building and nation-building must be revived. Rail should be the leading mode of transport in a well-functioning economy. Today, this requires a two-phase process: maintaining and building the current rail grid; but moving as quickly as possible to overhaul it, through the introduction of high-speed rail and then magnetically levitated train systems. "Maglev" represents a scientific revolution, which uses entirely different methods of locomotion, and can travel at speeds of 250 to 300 mph (417 to 500 kph). The overhauled U.S. network can extend southward into Mexico and the rest of Ibero-America, and northward to Alaska, through to Russia and the Eurasian Land-Bridge. The bill of materials to build rail will revive steel and other critical industries.

It was President Abraham Lincoln who deliberately launched a rail-building enterprise, subsidized and directed by the U.S. government, which brought the United States from 30,626, to 163,359 miles of track in the 30 years to 1890. The railroad-building drove the expansion of the steel, iron, and national industries generally. During the New Deal, President Franklin Delano Roosevelt used the Reconstruction Finance Corporation to rescue and rejuvenate the rail industry, which had fallen into bankruptcy during 1929-33 under the hands of the Morgan bankers. FDR turned it back to Lincoln's intended purpose. Then in the economic mobilization for World War II, the volume of freight transported by rail, measured in ton-miles, doubled. Without rail, the mobilization could not have occurred.

Figure 1 shows that by 1943, railroads carried 72.6% of all freight in the nation, and inland waterways carried another

FIGURE 1
Percent Share of Domestic Intercity Freight Traffic, by Mode of Transport



Source: U.S. Department of Commerce.

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13.2%; trucks carried only 5.3%. The U.S. economy functioned at a very high, fully utilized and rapidly expanding level during the World War II mobilization, *with trucks carrying only 5% of all freight flows.*

One tow barge that travels on the waterways, carries as much physical freight volume as do 2.25 unit trains, the same physical freight volume as is carried by 870 trucks (35 highway miles of trucks). Water transport is the cheapest mode for freight transport, but much slower than rail traffic. Water and rail are the two complementary, fundamental modes of transport for an economy.

The U.S. government poured huge sums into highway construction from the 1950s—both for cited military-security reasons, and less-publicized real estate speculation—and thus, in effect, subsidized the auto and trucking industry. Truck service as a mode of transport exploded, while the railroads shrank. As Figure 1 shows, by 1999, trucking increased to 29.4% of all domestic goods transport. Ignoring for a moment the huge role of coal in rail transport—more than half of all ton-miles carried by railroads—truck would have surpassed rail in the volume of freight traffic carried.

The Assault Against Railroads

The culminating assault against rail occurred in the "post-industrial society" shift which began in the second half of the 1960s, and became an avalanche of industrial destruction with the 1970s oil hoaxes and the Federal Reserve "interest rate shock" of 1979-80. With railroad mileage in decline, in October 1980 President Jimmy Carter forced the deregulation of the rail industry, as the Congress passed the Staggers Act. Prior to the Act, the now-defunct Interstate Commerce Commission had worked with the rail carriers to set the freight rates charged to customers. The rates were set at what amounted to a "parity" level, covering a railroad's cost of operation, and providing a moderate profit. This was eliminated, triggering a speculative wave of mergers in a pattern since familiar throughout the economy, accompanied by asset-stripping of plants, equipment, and labor force.

In 1980, there were more than 20 American major Class I rail carriers. Today, that has been whittled down to four: Union Pacific; Burlington Northern and Santa Fe; Norfolk Southern; and CSX. Class I carriers are defined by a minimum revenue level (in 2000, the threshold was $261.9 million in annual operating revenues). The Class I lines, dominated by banks, control more than 90% of the revenues of the entire rail industry (the other parts of the rail industry are smaller regional carriers, and short-haul lines).

This fierce consolidation slashed apart the rail industry, without regard to the functioning and economic security of the United States. Indeed, the Big Four's slashing accelerated the cutting of rail trackage under way decades earlier. In 1929, there were 229,530 route-miles in operation. This was reduced to 164,822 miles by 1980; in 2000, there were only 99,250 route-miles of Class I track left, a contraction of 40% since 1980 and 57% since 1929. The Big Four selected the most profitable routes, carrying the most profitable commodities, and ruthlessly eliminated the rest, even though they had genuine national economic value. Many cities and towns were simply cut off from regular and timely rail service, forcing an even greater dependency on trucks. For example, in Iowa, nearly 2 out of 3 miles of rail track have been eliminated, severely affecting that agricultural state.

Consider an overview of the shrinkage and damage inflicted on the other critical features of Class I rail grid, by 20 years of relentless "free enterprise" cutting.

- In 1980, there were 458,000 railroad workers employed; by 2000, there were 168,000, a drop of 63%. Many workers forced into early retirement were 50-65 years old; most were skilled, such as engineers or trainmen, whose 30-40 years experience is lost.
- In an insane drive to squeeze out profits, rail crews per train, once at four workers, have been reduced to three and even two workers. This contributes to accidents, though the rail companies deny it.
- In 1980, in the United States, there were 28,094 locomotives in operation; in 2000, there were 20,028, a plunge of 29%.
- In 1980, there were 1,168,114 freight cars in operation; by 2000, that was down to 560,154, a collapse of 52%.[1]

Coal Transport the Route to Efficiency?

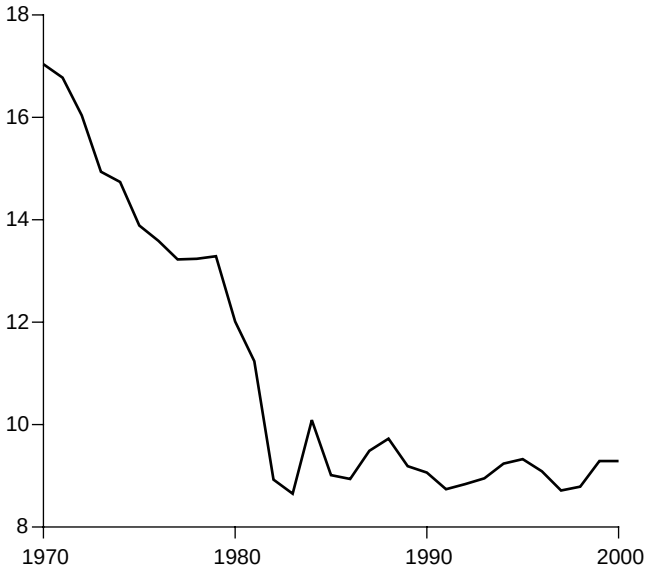
The Class I companies answer the charge of asset-stripping by reporting that in 1970, they originated (carried) 1.485 billion tons of goods, and in 2000, they originated 1.738 billion tons, 16% more. They say that they are "leaner," but more efficient. But investigation proves this claim is not only largely fraudulent, but also discloses a fundamental flaw in the rail industry, a conclusive proof of the inadequacy of the U.S. rail grid.

Over the last 30 years, the railroads have become radically dependent on transporting coal. Many of the new improvements that rail companies have made, and the new locomotives they have bought, have been on the lines that come from Powder Basin, Wyoming, bringing low-sulfur coal to the East Coast. This raises a real question about American energy policy. While coal is a legitimate source for power generation, its use ultimately should be declining, were the United States serious about developing nuclear power, using high-temperature gas-cooled reactors (and eventually developing the higher energy-flux density fusion power). But instead, coal's use is dramatically increasing: In 1970, of all the goods originated by the rail industry, coal constituted 405 million tons,

1. The percentage of reduction of the essential parts of the rail system may be less steep than initially reported, because some of the lost miles of trackage, some of the locomotives, etc., which the Class I rail lines abandoned, have been picked up by smaller regional and short-haul railroads. *EIR* is investigating this. But even if the percentages are smaller, they are still very substantial. Further, this equipment that is abandoned by the Class I rail lines and is picked up by the smaller regional and short-haul lines, is often not replaced, but patched up, making it less reliable and safe.

FIGURE 2

Rail Industry's Shipping of Tons of Goods Other Than Coal, Per Household



Source: Association of American Railroads; U.S. Department of Commerce, Bureau of the Census.

or 27% of the total; but by 2000, coal constituted 758 tons, or 44% of the total.

Thus, the rail industry has become an auxiliary of less and less efficient, deregulated energy industry. Covered up, is the absolute decline in non-coal goods carried by Class I roads: from 1.080 billion tons in 1970, to 981 million tons in 2000. Considered per household, the drastic, 45% reduction in rail freight other than coal, is shown in **Figure 2.**

Cutting the rail grid to the bone has had serious consequences. This was further demonstrated in 1997, after Union Pacific in 1996 swallowed up Southern Pacific: The combined railroad, which had slashed its infrastructure, lacked the locomotives and hopper cars to transport the grain out of America's grain-belt states. The grain piled up on the ground, and one analyst reported, that delays were "costing retailers, manufacturers, mines, and agricultural shippers more than $100 million a month."

Passenger Service Gutted

Meanwhile, America's passenger rail service is only a remnant of its former self, and remains under severe attack.

Today, Amtrak operates 22,741 miles of track (see map, p. 31). America's other "commuter" railways between cities, operate 6,714 miles of track, bringing the total inter-city passenger trackage to 29,418 miles (for the most part, Amtrak and the other commuter railways lease the track they use from the rail freight companies). It is believed that, earlier, America's total inter-city passenger rail trackage was at least 50% higher.

Moreover, Amtrak is under siege. In 1997, the Conservative Revolutionaries in Congress passed the Amtrak Reform and Accountability Act, which specified that Amtrak must reach "operational self-sufficiency," without any funding from the Congress, by December 2002, or be radically "restructured and rationalized." This means that large chunks of Amtrak would be shut down, as under Sen. John McCain's (R-Ariz.) new proposals, which would leave entire sections of the United States without any inter-city rail traffic. The 1997 Act set up an Amtrak Reform Council, whose vice chairman is Paul Weyrich, the radical free-marketeer and Carlist (fascist) co-founder of Christendom College in Front Royal, Virginia. The Reform Council seeks to greatly shrink Amtrak.

The December 2002 date to achieve "financial self-sufficiency" was clearly impossible, since Amtrak, created in the 1970s, inherited the wreckage of the looted Penn Central, after that company was put into bankruptcy. In order to function, Amtrak required major capital investments, which it has never received.

Amtrak operates a high-speed rail system in the Northeast Corridor between Washington and Boston. But it must share the track with freight railroads, which wear the track down. Amtrak should have its own dedicated track, as does the high-speed TGV in France, for example. On the 220-mile route between New York City and Boston, due to the condition of the track, and other limitations, Amtrak is able to run its Acela Express at maximum cruising speed (150 mph) for only 18 miles.

On Aug. 19, the *Wall Street Journal* stated in an editorial that when in June of this year, Amtrak asked the Congress for a measly $200 million loan guarantee in order to survive, Congress should have refused, and forced Amtrak into bankruptcy. This, says the *Journal*, would have "allowed a [bankruptcy] judge to take the political heat for killing off Amtrak's dogs"—that is, Amtrak's routes outside the Northeast Corridor.

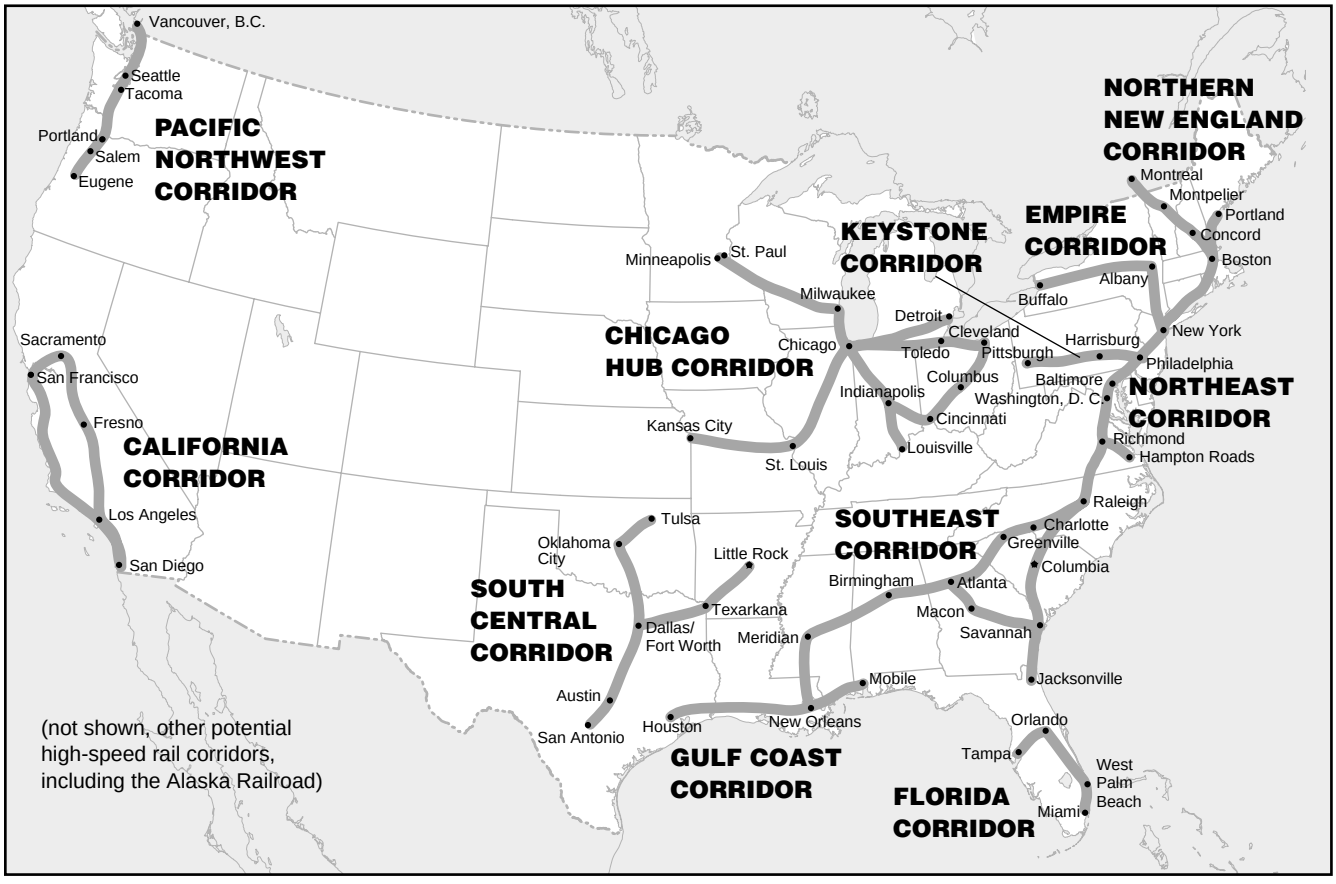
A Technological Revolution and Reconstruction

In a well-functioning economy, rail is the leading mode for transport. Relative to trucks, it is several-fold more fuel-efficient, has a higher energy-flux density, and requires far less physical space—an advanced rail line uses one-third the space of a highway system. It travels at far higher speeds than inland water transport, and carries a few orders of magnitude more freight than an airplane.

In 1929, the United States had 229,000 miles of Class I track-route miles for physical goods transport, which is now shrunken down to less than 100,000. It has currently approximately 30,000 miles of inter-city passenger mileage, but needs far more than that to adequately cover the country. The United States must have a transcontinental rail system reaching all major points safely, efficiently, and conveniently. With the rail system now near breakdown, the President and

FIGURE 3

High-Speed Rail Corridor Designations



Congress must now do what should have been done earlier: Extend the rail system to the proper operating dimensions, and introduce revolutionary technologies, which will transmit great productivity and economic growth, and supersede some current rail technologies still rooted in the 19th Century.

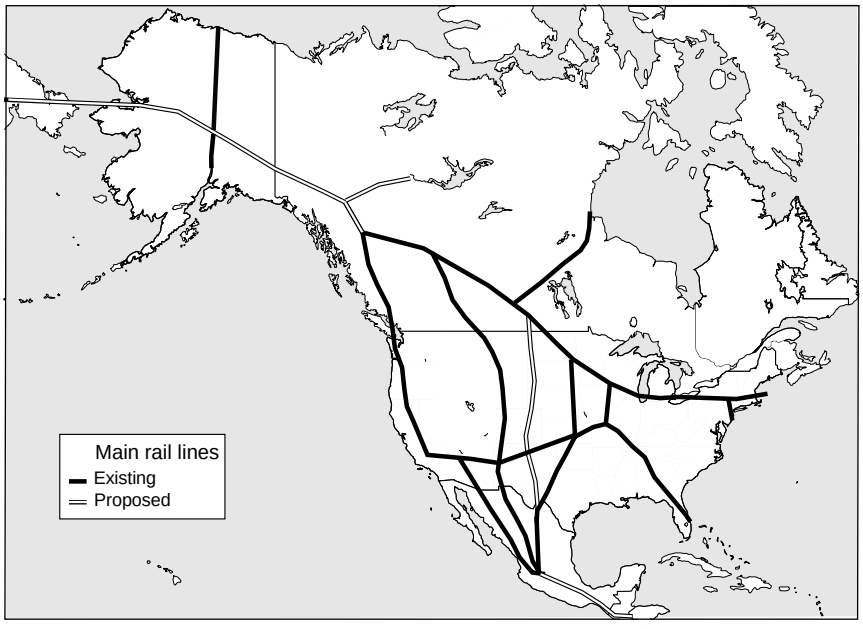
The United States must take two simultaneous measures. First, it must make the necessary capital investment and operating expenditures to keep the current system functioning. On the passenger side, Amtrak must be preserved and expanded. Second, it must overhaul and enlarge the existing system through technological advancements. In the area of safety, this involves Automatic Train Protection technologies. For operating systems, it means introducing high-speed rail, as an interim system, and moving on a crash basis to introduce magnetically levitated train corridors.

One can see the problems one will encounter. For example, due to the domination of the automobile, and underinvestment in passenger rail, taking all modes of inter-city passenger commuting—rail, car, plane, and boat—rail only accounts for a pitiful 0.6% of the volume. A rational first phase of rebuilding would expand inter-city rail tenfold. Second, 70% of all rail travels at less than 90 mph (150 kph), with many freight trains crawling along at 30-50 mph. Existing high-speed systems in Europe and Japan cruise at top speeds of 125 to 150 mph (208 to 250 kph); the French TGV (Train à Grande Vitesse) at a top speed of 186 mph (300 kph); Japan's Bullet Train (Shinkansen) even faster. And new high-speed freight lines are capable of 90 mph (150 kph). Thus, high-speed trains travel 2-2.5 times faster than the average speeds that now prevail in America.

The High-Speed Train division of the U.S. Department of Transportation (DOT) advanced a high-speed passenger system in a plan it released a few years ago. This calls for building 12 high-speed corridors in the U.S. (see **Figure 3**). One such corridor, the Northeast Corridor, operates now, though sharing freight rails; new corridors would radiate out from Chicago and cover the Southeast, etc. The construction of high-speed corridors requires a transformation: replacing diesel locomotives by electric ones; building of catenary systems (overhanging wires) that provide the electric power to the train; advanced signal systems; and where possible, double tracking, so that the high-speed train can travel along its own dedicated lines in each direction. This phase would require a significant leap in electricity consumption, and in-

FIGURE 4

Rail Connections to the Eurasian Land-Bridge



creases in America's power generation.

The DOT projects that a 12-corridor system would cover approximately 12-15,000 miles in the most densely populated parts of the country, and cost between $50 and $75 billion, in 1998 constant dollars, over 20 years (over $100 billion in non-inflation-adjusted dollars).

Breaking Through to Maglev

America should intensively push to develop a magnetically levitated train system. Maglev has several revolutionary features. There is no steel wheel riding upon steel rail, as in traditional rail transport since the 1830s. Magnetic forces lift, propel, and guide a vehicle along a guideway, so that it "flies" on a magnetic cushion. This eliminates the major source of vibration and friction on the vehicle, which slows all traditional modes of railroad transport. Maglev systems permit revolutionary methods of locomotion and control of the moving vehicles. Current-generation maglevs travel, in extensive tests, at top speeds of 280-300 mph (450-492 kph). This is a tremendous four to five times advance in speed for U.S. train travel. And maglev trains negotiate curves and inclines better than slower traditional trains.

Maglev would completely change the time for trips, relegating air travel to a long-distance role. A 250-mile maglev excursion between downtown Washington and New York City would take an hour. Compare this to the same trip by air, which, counting travel time, waiting time at the airport, and the travel time from the airport to downtown, takes at least two to three hours.

For the most part, maglev would replace airline travel of 500 miles (900 km) or less, and be quite efficient for distances of up to 1,000 miles (1,500 km).

Of even greater consequence, a maglev system would produce tremendous breakthroughs for transport of freight. Freight-dedicated maglev would travel slower than maglev for passengers—initially, 150-200 mph—and would haul light to moderate loads; but it would progress to carrying heavier loads, and integrate, like a large conveyor belt, manufacturing regions of the country up to 500 miles apart.

Ultimately, maglev trains in underground vacuum tunnels may traverse long distances at supersonic speed. More important than these feats, the testing, construction, and development of maglev rail provides a laboratory for potential discoveries of other technologies which will advance the economy.

Loading/Unloading Systems and Intermodal

Other advanced technologies can proceed alongside maglev, to further upgrade the operations of the rail system. Consider loading, unloading, and warehousing goods at terminals. The German Thyssen company has developed a system for loading/unloading based on an overhead monorail transporter system for heavy loads, in which the containers are grasped and lifted from above by automatic carrier vehicles suspended from monorails running directly above the train tracks. The monorail can transport the containers either to a storage area, or directly to a truck loading area, where the containers are lowered from above onto waiting trucks (or vice versa from truck to rail car). This would connect rail and seaports.

China has a maglev route under construction. A prime purpose for a reconstructed rail-maglev system, would be to extend it northward, to connect through Canada and Alaska, across the Bering Strait, to Russia (see **Figure 4**). From there it would connect into the eastern terminus of the main lines of the Eurasian Land-Bridge, and on to Paris and Rotterdam. The rail grid would also be extended southward, through Mexico, to all of Ibero-America. America's relations to the world would be profoundly transformed. Reconstructing rail will call for a tremendous volume of goods from American industry.

America cannot survive the destruction of its rail system. A crash program for its overhaul is urgent, restoring Lincoln's policy of rail- and nation-building.