

# Fruit of 'recovery': America no longer a steel making nation

by Robert Gallagher

The President must immediately invoke the statutory authority granted him by the Defense Production Act to halt a restructuring now in progress in the U.S. steel industry that is rendering the United States dependent on foreign imports of raw and finished steel and incapable in the near term of reducing iron ore in quantities adequate for national defense.

As a first step, the President must seek injunctions against demolitions of the nation's blast-furnace capacity now in progress. Unless this is done, the industry will not be able to provide the "surge" required to supply the defense mobilization the country needs.

The "recovery" in the steel industry reported by the news media is a hoax. Not only were the output levels reported in 1984 only 60% of 1973 production levels, but the very basis of the 23% increase in raw steel output over 1983 and 1984 was a transformation of the industry from ore reduction to steel-scrap recycling. The destruction of blast furnace capacity will lock the nation into a dangerous dependency.

Last year, as much as 50% of the finished steel consumed in America was either imported from abroad or produced from scrap remelted in "mini-mill" recycling plants under the control of the international grain cartels. At any moment, these imports could be cut off and the grain cartels could then drive up the price of their junk scrap steel.

Last year, the United States produced only 48 million tons of finished steel—barely more than we did during World War I. The U.S. consumed 98 million tons of finished steel: the 48 million produced here, 26 million imported, and 24 million the result of recycling scrap.

Imports of raw steel have increased ten-fold since 1980, as plant managers search for supplies in the wake of the shut-down of U.S. blast furnace capacity. The share of domestic steel production coming from electric furnaces that primarily recycle steel scrap—much of it from junked automobiles—has risen to 33% of total production.

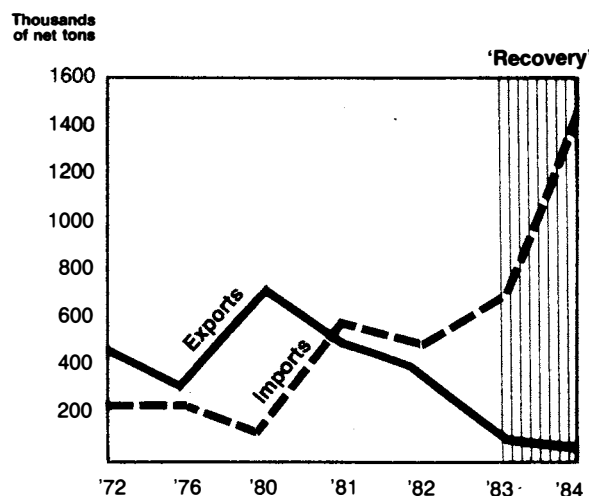
## The steel steal

The raw steel imports are coming from Brazil, Venezuela, and other Third World nations which the International Monetary Fund is forcing to export the steel they need at

home, to earn foreign exchange to pay their debts. Meanwhile, the IMF-allied financial interests—for example, Crédit Suisse's partner, First Boston Corporation—are moving to shut down U.S. blast furnaces and integrated steel mills, while their partners such as Cargill of the Swiss-based grain cartel are buying up U.S. electric furnace capacity in mini-mills. One stated goal is to eliminate blast furnace production in the United States. They also demand cuts in the U.S. defense budget and decry the Strategic Defense Initiative (SDI) as "destabilizing."

These financial interests march in step with the Pugwash Conference on Science and World Affairs, i.e., the Soviet Union. Now, they are attempting to pit the debtor nations against the United States—just as they did with the Arab oil-producing nations during the Nixon administration. A repetition of the 1973-74 oil hoax and embargo—with a different commodity—is not inconceivable.

Figure 1  
From net exporter to net importer of raw steel

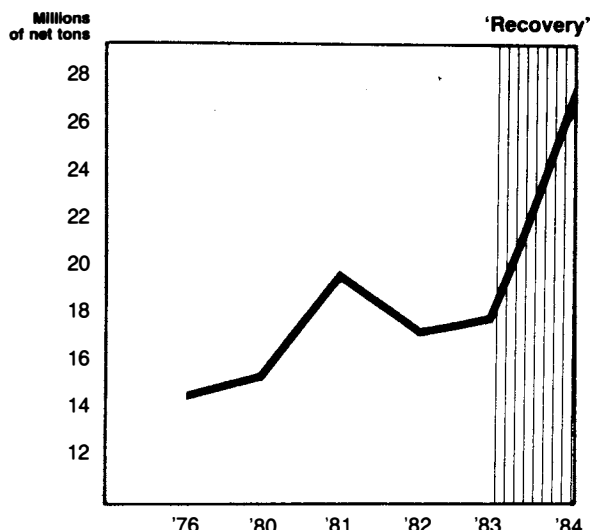


Imports of raw steel have increased tenfold since 1980. What the United States itself still produces is mostly from recycled scrap, not iron reduction. Source: American Iron and Steel Institute Statistical Reports.

In the steel industry, reliance on scrap is associated historically with depression and economic stagnation. Low scrap usage is associated with economic growth. The lows in scrap-usage in American raw steel production in the past 50 years occurred at the height of the Manhattan Project and war mobilization in 1944, and at the height of the Apollo program in 1964—two periods of economic growth. But today's reliance on scrap (and imports) is taking the form of reorganizing the entire industry. As a result, real capacity is lower now than it was in 1931.

To reverse this situation, the nation must embark on an aggressive program to rebuild the steel industry "with Japanese methods," i.e., the methods Gen. Douglas MacArthur introduced to Japan. This requires building many, many

Figure 2  
**All steel products: U.S. imports nearly double since 1980**



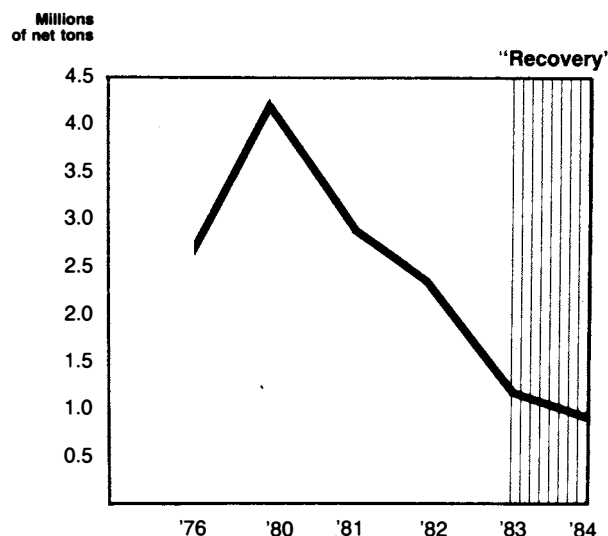
The chart shows imports of all categories of steel—raw, semi-finished, and finished. Source: AISI Statistical Reports.

modern computerized blast furnaces. The plasma furnace now under development is apt for production of specialty steel only, not for the production of the millions and millions of tons of carbon steel required to build nuclear power plants, railways, dams—and battleships and tanks.

### Steel and national sovereignty

The shift now under way in the industry away from domestic ore reduction occurs while the United States and Europe face heavily armored Soviet tank divisions which outnumber those of the West by three-to-one, and navy that outnumbers America's several times over and has repeatedly humiliated U.S. commanders in its worldwide all-ocean demonstrations. If there is one thing the U.S. military needs, it is reliable supplies of domestically produced steel—and lots of it. The burning aluminum fires that the British

Figure 3  
**All steel products: U.S. exports plummet since 1980**



Exports of all categories of steel—raw, semi-finished, and finished dropped to one-third of the 1976 levels by 1984—less than a decade later. Source: AISI Statistical Reports.

couldn't extinguish on their aircraft carrier Sheffield in the Malvinas war show there is, as yet, no substitute for steel for the navy.

The Soviet navy boasts a total of 791 major surface combatants, compared to the United States' meagre 352 (and present budgetary plans would increase the U.S. fleet by only about 90 major vessels). In addition, this Russian armada is complemented by a fleet of 785 minor ships of war, including missile and torpedo boats, patrol boats, and anti-submarine warfare platforms. The United States has 82 of these. In its merchant marine, Russia has 8,279 ships, compared to the United States' 5,579, with a gross tonnage of 23.4 million tons, compared to the United States' 18.5. The present tonnage of U.S. Navy major surface combatants is about 2.7 million tons. Approximately that amount of steel is required for new vessels to just pull even with the Soviet fleet, and even more steel for the necessary shipbuilding capacity to do it.

If this is combined with other defense needs, by any realistic measurement, there is a several hundred million ton steel deficit for defense alone. But the editor of a leading steel industry journal told this writer, "The trend is away from production of steel here from blast furnaces and steel refining, and towards bringing semi-finished slabs in from Brazil and pellets from Venezuela that can be rolled immediately or melted down in an electric furnace with scrap. The numbers on the imports are not that large yet, but it's the trend that's significant." When the danger of import cut-offs was raised to this editor, he replied, "We have enough scrap to last us for a long time."

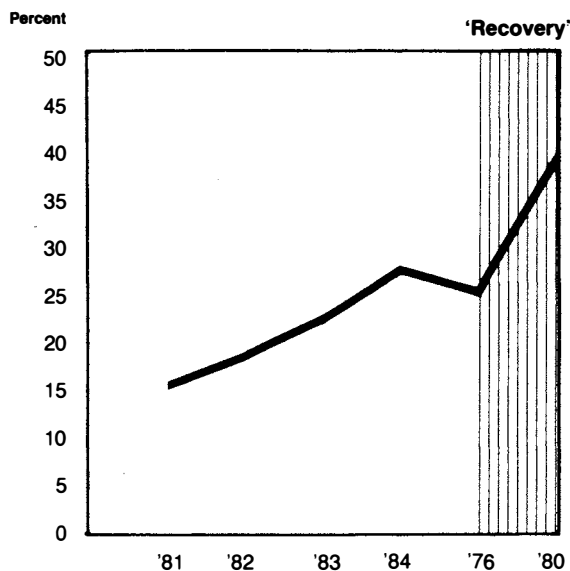
A steel industry analyst at Shearson Loeb Rhoades-

American Express Lehman Brothers in New York, said that “mini-mills [where scrap is re-melted and formed into lower-grade raw steel] and electric furnaces could eventually produce almost all of the steel we will use. If you want to replace a rail tie, you can just take it up and re-melt and re-form it. It won’t work exactly that way, but that’s generally how things will work. We will enter a point where the only need for integrated ore reduction plants will be to make up the difference between the scrap that is lost because of wear and tear.”

Using Britain as an example, this analyst wrote in 1980, “Across from the fields of Llanwern the future of steel already emerges—the Alpha private steel [mini-]mill, 800,000 tons per year on 500 men. Llanwern has problems doing that with 10,000 men, not counting headquarters. . . . The steel in-

Figure 4

### Imports double as percentage of domestic steel shipments



The percentage of domestic net shipments of all categories of steel which represent imports, has nearly doubled between 1980 and 1984 to well over a third of the market. Source: AISI Statistical Reports.

dustry in the United States is in a restructuring phase in which steelmaking by mini-mills is gaining while integrated operations are retrenching.”

### Obsolete methods led ‘recovery’

Official industry statistics show that this forecast was realized in the 1983-84 “recovery” in steel. The much-touted 23% increase in U.S. raw-steel production in 1983 and 1984 did not occur in the integrated steel mills that led steel production during the Manhattan and Apollo projects. Production at the seven largest steel companies increased only 10%, according to figures available from the U.S. Bureau of Mines.

Where did the large production increase occur? Production in the antiquated 19th-century open hearth furnaces left

36%, so that its share in raw-steel production increased for the first time since the 1950s. The reason? The open hearth can serve as a scrap melter. Although production in the basic oxygen process—the most advanced steel-making process available today—reportedly increased by 7 million tons over 1983 and 1984, for the first time since its introduction in the 1950s, its share of U.S. raw steel output suffered a significant decline—from 61 to 57%. The reason? *It is not a scrap machine.*

In the basic oxygen process, a jet nozzle injects liquid oxygen at Mach 2 supersonic speeds into a bath of molten iron provided by a blast furnace. The process was invented by engineers trained in the German hydrodynamic tradition. BOP furnaces can take only about one-fourth of their charge in scrap.

The most politically significant increase in raw steel output in the “recovery” came in a seven-million-ton jump in output from older electric furnace technology, the basis of the mini-mill fad initiated by the Carter-Mondale administration. If steel is in recovery today, Jimmy Carter can take all the credit.

Steel mini-mills are small plants with annual capacities of 300-400,000 tons built around electric furnaces. The electric furnace was made for the production of steel alloys and other specialty steels. A U.S. Steel spokesman said regarding U.S. Steel’s 14 electric furnaces, “We built them to make exotic alloys, but we got out of alloy-making a long time ago.” Roughly 75% of electric furnace production is now raw carbon steel made from 100% scrap.

The relative backwardness of the electric furnace is measured by two quantities, energy flux density and output per unit of energy consumption in the furnace. We measure energy flux density in steel refining as the new energy input per unit time through a horizontal cross-section of the furnace. For the open hearth, energy flux density is approximately 1.2 million BTUs per meter-squared hour; for the electric furnace, the figure was 3.0 million BTUs; for the basic oxygen process, it was 12 million BTUs! Tons of output per billion BTUs consumed by furnace was 250 for the open hearth, 600 for the electric, and 3,790 for the basic oxygen process.

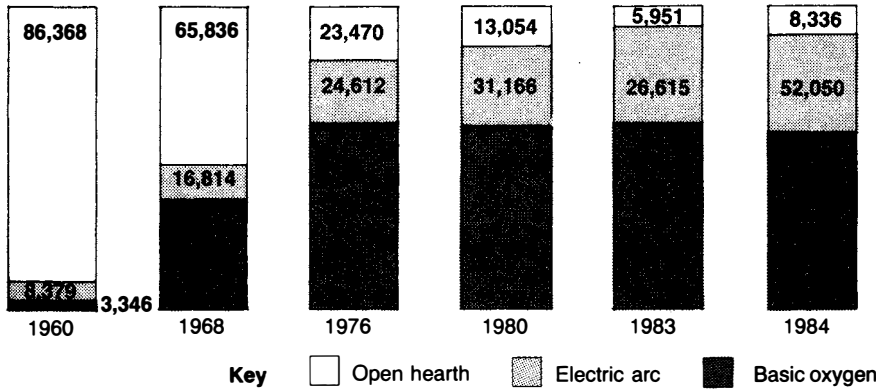
### Capacity lower than in the depression

The scrap content of steel produced in the last few years is higher than at any previous period of history. The quality of scrap-based steel leaves much to be desired. We asked a spokesman for Florida Steel, a mini-mill chain, if they removed the seats, the rubber parts in the engine, etc. from scrap cars before using them. He said, “You should see what our stockpile looks like. It looks like a rust junk-heap. They’re supposed to remove the seats, the rubber parts, but often they don’t. To offset the impurities we add an alloy.”

It is ridiculous to include this production within U.S. raw-steel capacity—now officially at 130 million tons per year. From the standpoint of national security, true capacity is

Figure 5.

**Structure of raw steel production:  
retreating from advanced technology**



*Open hearth furnaces are the most technologically backward, electric arc more advanced, and basic oxygen furnaces the relatively most advanced of currently used steel producing technologies. Beginning in 1980, the steady growth in the proportion of basic oxygen furnaces not only stopped, but began to reverse itself. Source: AISI Statistical Reports.*

measured by the ability to reduce ore to produce new steel in the state-of-the-art steel-making process, the basic oxygen process, and does not include the antique open hearth, nor the scrap melters. Although BOP capacity is reportedly 80 million tons (it was higher in 1978), it is doubtful that there exists enough blast-furnace capacity to feed the BOP furnaces with the 65 million tons of molten metal required to reach full capacity. This puts U.S. steel capacity at most at 70 million tons, or less than half the 160-million-ton capacity of 1974, and lower than any time since 1931.

**Who owns the mini-mills?**

A preliminary investigation has revealed that the Cargill grain firm, headquartered in Switzerland, owns at least six mini-mills. Its holdings include North Star Steel, whose mill in Beaumont, Texas has an annual capacity of one million tons, and mills in Monroe, Michigan; Welton, Iowa; and St. Paul and Duluth, Minnesota. A conservative estimate would give Cargill alone control of one-tenth of U.S. electric furnace output. But Cargill's North Star is making a bid on the Youngstown, Ohio works of U.S. Steel to turn it into a mini-mill. Other owners of U.S. mini-mills include Voest-Alpine of Austria.

The Defense Production Act authorizes "the expansion of productive capacity and supply level beyond the levels needed to meet the civilian demand, in order to reduce the time required for full mobilization in the event of attack on the United States." Apparently, the administration is considering whether to invoke the act. In response to a question on the steel crisis, Defense Secretary Caspar Weinberger told an April 2 press conference, "I think we have the capability and the potential of converting our immense industrial resources to the kind of military production that we would need in the event we had to go to war. But I think it's extremely important to recognize that we have to take steps now to maintain and preserve that industrial capability." Let's do it!

Figure 6

**Raw steel production—60% of 1973 rates  
(in thousands of net tons)**

|      | Output  | % 1973 output |
|------|---------|---------------|
| 1973 | 150,799 | 100           |
| 1976 | 128,000 | 84.9          |
| 1980 | 111,835 | 74.2          |
| 1981 | 120,828 | 80.1          |
| 1982 | 74,577  | 49.5          |
| 1983 | 84,615  | 56.1          |
| 1984 | 91,000  | 60.3          |

Source: AISI Statistical Reports

Figure 7

**U.S. and Soviet navies, 1984**

|                               | U.S.S.R.    | U.S.       |
|-------------------------------|-------------|------------|
| Battleships                   | 0           | 4*         |
| Aircraft carriers             |             |            |
| VTOL & helicopter             | 4           | 12         |
| Attack                        | 0           | 13         |
| Submarines                    |             |            |
| Ballistic missile             | 90          | 32         |
| Cruise missile                | 67          | 0          |
| Attack                        | 228         | 95         |
| Cruisers                      | 44          | 27         |
| Destroyers                    | 84          | 89         |
| Frigates                      | 177         | 80         |
| Corvettes                     | 104         | 0          |
| <b>Total major combatants</b> | <b>791</b>  | <b>352</b> |
| <b>Minor combatants</b>       | <b>785</b>  | <b>82</b>  |
| <b>Total combatants</b>       | <b>1576</b> | <b>434</b> |

\* Built in World War II but ordered out of mothballs by the President.