

How the new Panama Canal will expand world trade by the year 2000

In the year 2000, either the present Panama lock canal will have become little more than a museum piece of 19th-century engineering prowess, carrying only a fragment of the traffic that would properly transit through the Isthmus of Panama, or a new, sea-level canal will have become one of the principal arteries of world commerce, linking two oceans and two hemispheres by a direct sealane, while also serving as the major transportation

artery for a thriving Ibero-American common market and for a northern South America-Central America-Caribbean basin industrialization zone.

Pessimists today have concluded that the expense of a new Panama Canal is prohibitive relative to the benefits to be derived, and that the limitations of the canal can be partially overcome by less expensive half-way measures. But as we show below, major chunks of the natural trade of the canal are already bypassing it out of necessity, and cannot be expected to return unless a new canal is built. Not to build the canal is to permit the Isthmus of Panama to again become the roadblock to efficient world trade that it was prior to the original construction of the canal, as the following analysis of past and projected future cargoes through the canal will demonstrate.

The Panama Canal, now approaching its 100th birthday, has between 1960 and the present been a mirror of the world economy. During the 1960s, total cargo traffic through the canal ballooned from 60 million tons in 1960 to 114 m.t. in 1970. Growth continued through 1975, reaching 140 m.t. before dipping for several years in the wake of the first oil shock. Apart from petroleum shipments from Alaska to the U.S. East Coast, there was only a slight recovery by 1980-81, and in 1983 there was a sharp dip in total traffic back to 1975 levels, based on the completion of an oil pipeline across Panama to carry the Alaskan oil.

Figure 1 shows that for many commodities, the peak



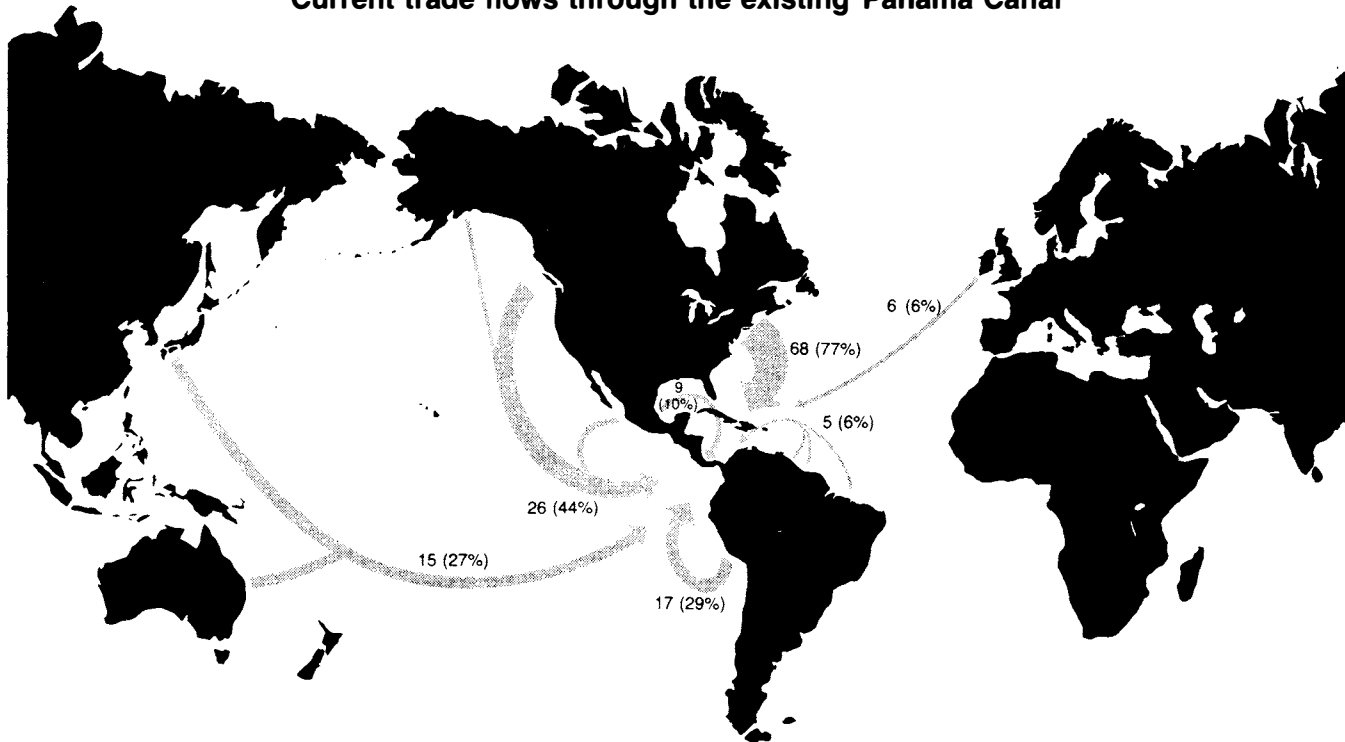
The canal today loses a major portion of its potential traffic because many ships are too large to make the crossing.

year was as early as 1975, and that in general, apart from the two largest categories, petroleum and grain, there has been a relative stagnation in most major cargoes for the past decade.

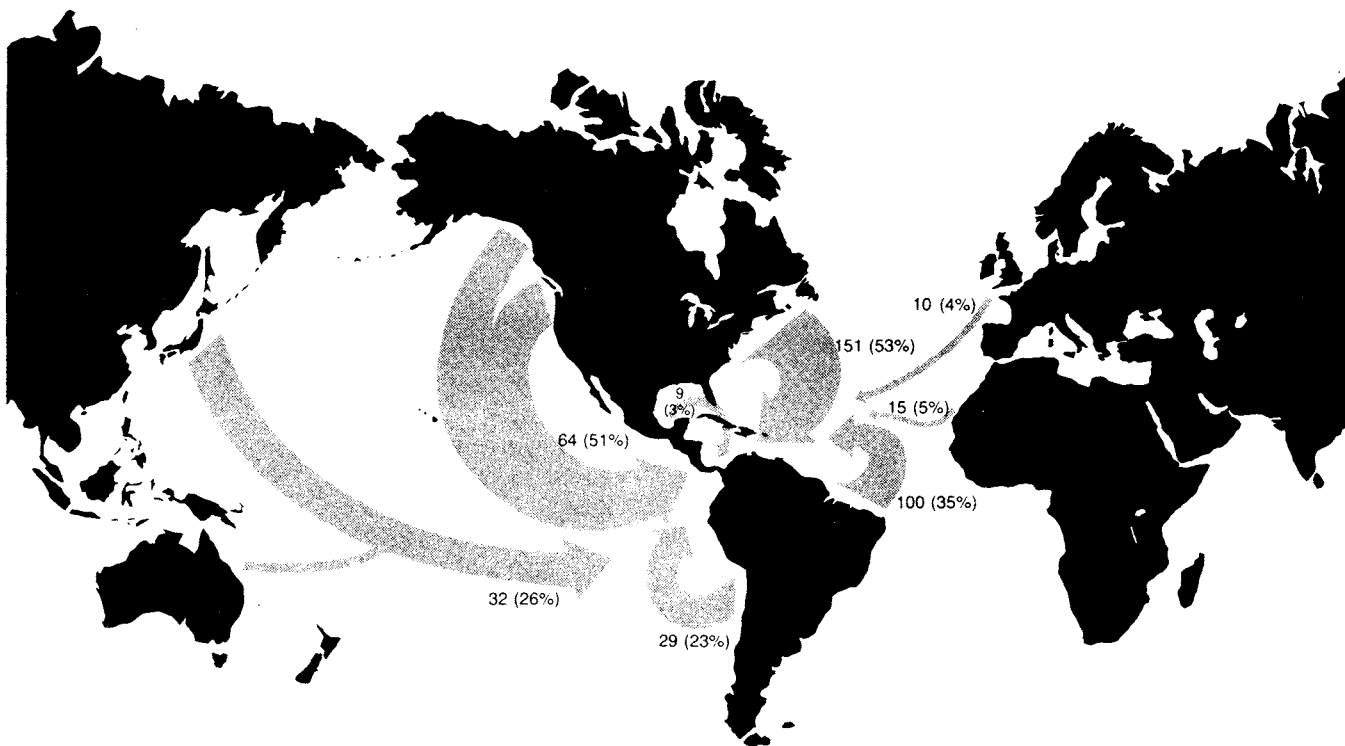
In terms of numbers of ships transiting the canal, a peak was reached in the late 1960s (**Figure 3**), where the theoretical capacity of the canal, around 14-15,000 transits per year, was attained, causing major delays. This prompted the only major study of the feasibility of a new, sea-level canal, in 1970. However, the economics of the shipping industry, especially after the 1974 oil shock, has led to increasing the size of ships carrying bulk cargoes, the major type of cargo that uses the canal, which reduced the number of ships transiting while increasing the total cargo. But by the late 1970s, this process had reached the other limit of t of ship that can go through, which is in the range of 40-45,000 deadweight tons (d.w.t.). At present, the most economically sized ships for two of the major bulk commodities in world trade, coal and iron ore, are 90-200,000 d.w.t., while for petroleum tankers, the optimal size is 200-300,000 d.w.t.

Hence, the present canal loses a major portion of its potential traffic because it is cheaper to take an alternate route with one large ship than to use the canal with many smaller ones. Thus Brazil currently exports around 25 million tons of iron ore to Japan via the Cape of Good Hope in South Africa in 200,000 d.w.t. ships, which would use the canal were it large enough. Half or more of the coking coal sent to

Current trade flows through the existing Panama Canal



Projected expansion of trade by the year 2000, through a second Panama Canal



Figures are in million tons. Percentages refer to portion of total Atlantic-to-Pacific or Pacific-to-Atlantic trade. Arrows are drawn roughly to scale.

Japan from the U.S. east coast, which could take advantage of a larger-capacity canal, now goes in 90,000 d.w.t. ships by the same South Africa route. And a pipeline was constructed across Panama to carry Alaskan oil, because that was much more economical than either using the canal in small tankers or taking the longer route around South America. The present canal has been deprived of a large portion of its potential cargo.

The other most striking feature of present canal traffic is that the nations contiguous to the canal derive the least benefit from it. The vast bulk of the Atlantic-to-Pacific trade goes from North America to Asia, and most of the remainder is petroleum and derivatives from the producing and refining centers in Mexico, Venezuela, and the Caribbean. Almost none of the traffic represents intra-Ibero-American commerce that logically would involve Brazil, Venezuela, Colombia, Ecuador, Peru, Mexico, Panama, and the rest of Central America. This is true in both directions.

The projected expansion

The projections in **Figure 2** (see also the maps) were based on two assumptions: a recovery of the world economy and with it world trade, and a sustained period of industrial growth for the economies of the developing sector, especially including the nations of Ibero-America, but also including Asia and Africa. The largest magnitude of increased traffic

assumed to go through a new Panama Canal in the year 2000 is the trade from the east coast of North America to Asia. It is assumed that all of the coal trade will be captured. This is coking coal, whose demand is in direct proportion to demand for steel. Having reached a high point of 22 million tons already, projecting a return to 30 m.t. is a very conservative projection, especially since Taiwan, Korea, and probably the other nations of Southeast Asia will also be importing it. The other major component of growth in this trade is in general products, including chemicals, manufactured items, and metals, which was projected to grow at about 4.5% between

Figure 1
Principal commodities moving through the Panama Canal, 1960-83
(million tons)

ATLANTIC TO PACIFIC	1960	1970	1975	1980	1983
Grain	2	12	17	28	35
Petroleum & products	12	14	16	12	14
Coal & coking coal	5	21	25	28	9
Fertilizers	2	5	7	8	8
Ores	1	2	2	1	1
Chemicals	1	2	2	4	4
TOTAL	23	73	84	85	88

PACIFIC TO ATLANTIC

Petroleum & products	3	3	8	35	20
Lumber & pulp	4	6	5	7	5
Iron & steel	1	6	10	6	4
Ores	10	6	6	6	3
Agricultural products	6	8	9	8	5
Machinery	0	1	1	2	1
TOTAL	32	41	56	82	58

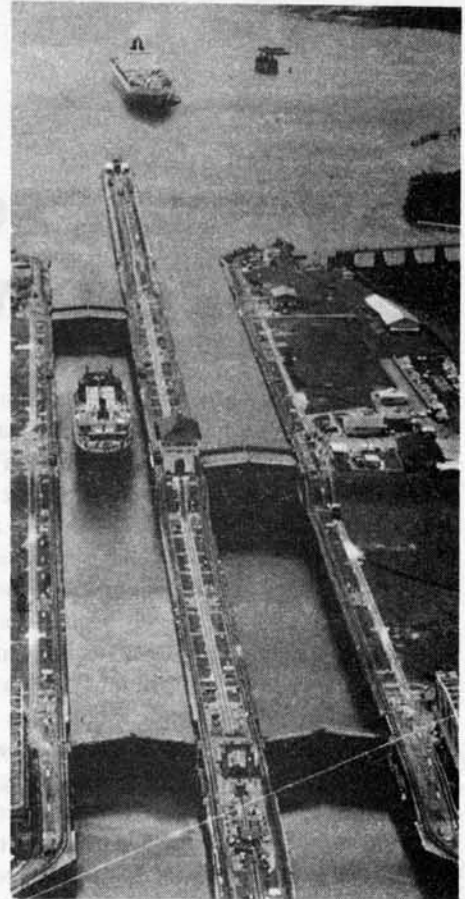
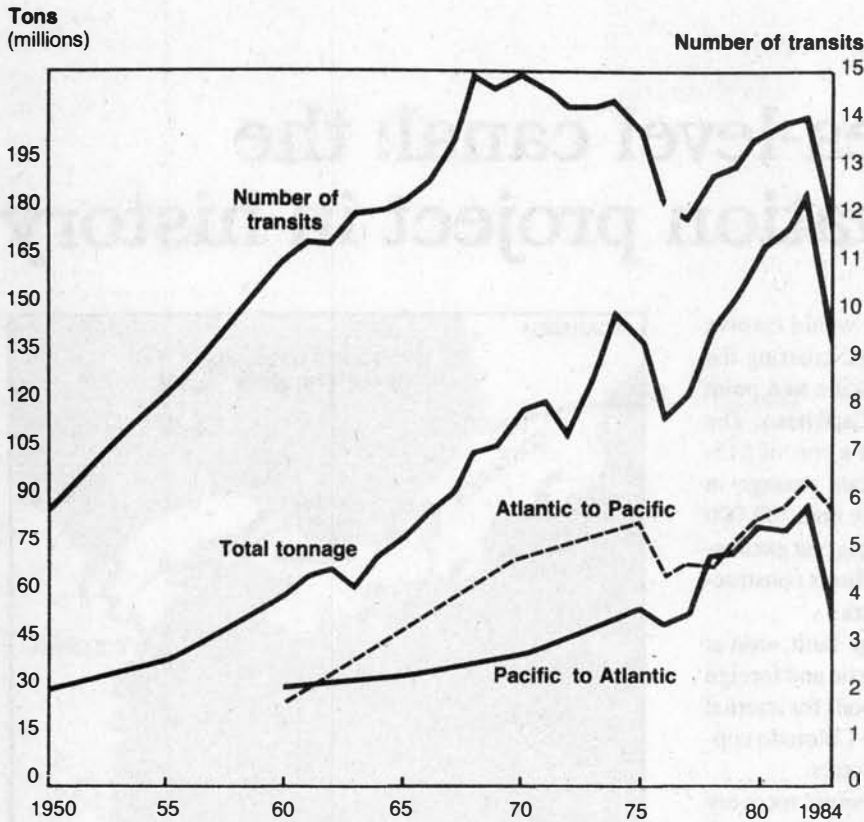
Figure 2
Projected traffic through the Panama Canal in the year 2000
(million tons)

	1983	2000
Atlantic to Pacific		
East Coast North America to:		
Asia	57	120
Grains	29	41
Coal	9	30
Other	19	48
West Coast North America	5	14
West Coast South America	5	17
East Coast South America to:		
Asia	2	75
Iron ore	0	60
Coal	0	10
West Coast North America	2	10
West Coast South America	2	10
Europe to:		
West Coast North America	3	6
West Coast South America	1	4
Africa to Pacific Coast	0	10
Pacific to Atlantic		
West Coast North America to:		
East Coast North America	9	35
Petroleum	6	30
East Coast South America	1	3
Europe	10	17
Africa	2	7
West Coast South America to:		
East Coast North America	8	13
East Coast South America	0	5
Europe	4	11
Asia to:		
East Coast North America	12	23
East Coast South America	0	5

Note: Figures for smaller regions are omitted, so subtotals may not add to totals.

Figure 3

Ocean traffic through the Panama Canal



1983 and 2000, a very modest assumption based on assuming a 4-5% growth in the world economy. The other fast-growing, if smaller item, is the trade with the west coast of South America, whose growth reflects the expected high rates of economic growth of the Colombian, Peruvian, Ecuadorian, and Chilean economies.

The sharpest growth overall is from the west coast of South America through the canal, because we anticipate 60 m.t. of iron ore, most of it going to the Far East, though some will also be used for steel-making on the South American west coast. The coal indicated is from the Colombian Cerejon mining project, which will start operations this year and export 15 m.t. by 1995, of which we expect two-thirds to be sold in Asia. And we anticipate the rapid growth of intra-continental trade from 2 m.t. now (mostly petroleum and products) to 10 m.t., mostly more highly manufactured items, plus some bulk items. Imports from Europe should also grow rapidly as industrialization takes off, and trade from Africa will rise from negligible levels to 10 m.t. as well.

From the Pacific to the Atlantic, the total trade will not grow as dramatically, because other than oil, there are no large bulk commodities that will use the canal. We anticipate a return of most of the Alaskan oil traffic, estimating 35 m.t.

in 2000. Trade from the west coast of South America to the east coast will rise from virtually nothing to 5 m.t., and shipments to Europe will rise to 11 m.t. The imports from Asia to North America will continue to rise, up from almost zero to 5 m.t. by 2000.

Under assumptions of healthy growth of the world economy, with sustained industrialization of the Third World economies, these projections will in fact be extremely conservative, but they can serve as a baseline for determining the feasibility of constructing a new canal. The savings realized by using the new large ships for bulk cargoes will be amplified by making the canal large enough to receive them, and will cut days and sometimes weeks off the travel times. And, while manufactured items such as machinery do not loom large in terms of weight, they are central for the process of industrialization, and the canal will be an essential transportation artery for creating the Ibero-American common market that must emerge if the continent is to develop. The canal route will remain the cheapest means of transport by far between Brazil, Venezuela, Colombia, and the east coast of Mexico, on the one side, and the Pacific coast of Colombia, Ecuador, Peru, Chile, and the west coast of Mexico, on the other, well into the 21st century.