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TAB C

SEA-LEVEL CANAL VERSUS PANAMA CANAL

The following excerpts are from the latest definitive study of the Panama Canal Company on the feasibility of a sea-level canal acrosss the Panamanian Isthmus -- REPORT ON REMOTE SEA LEVEL CANAL (September, 1959):

"PART II. SUMMARY AND RECOMMENDATIONS

"(a) Statement of Need

"The Panama Canal is inadequate to handle the larger ships that are being built today and will soon be incapable of handling the ever increasing numbers of vessels that seek transit across the American Isthmus. These facts are clearly set forth in a report entitled "ISTHMIAN CANAL PLANS, 1959, Long Range Study." This report was based upon authoritative projections of future ship movements through the Canal, and exhaustive engineering studies of possible methods of increasing the capacity of the waterway.

"The Canal channel is being widened and deepened, improved lock machines are being provided, and operating techniques have been developed to increase the ship-handling capability of the present lock-type Canal. These actions are, at best, only interim measures as they do nothing to increase the limiting width of the locks and they do not provide the dependable transit capacity that will be necessary in the early 1970's.

" Construction

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"Construction of a sea level canal will provide an entirely adequate waterway across the American Isthmus. No other type of canal will meet the growing needs of world commerce throughout the foreseeable future.

"(b) Feasibility of Construction of a Sea Level Canal by Nuclear Methods.

"Nuclear construction appears to offer an attractive alternate method of constructing a sea level canal. If nuclear explosions prove to be as effective in excavating earth and rock as initial tests and calculations indicate, there is no doubt that a sea level canal, a virtual strait, could be carved across the American Isthmus.

"With proper control the harmful effects of nuclear detonations could be minimized to the point that there would be no damage to areas beyond the depopulated construction zone, and no serious danger to construction workers on the project.

"Of the thirty-odd routes across the American Isthmus that have been surveyed as possible alternate canal sites, only five are in uninhabited areas and are otherwise adapted to nuclear construction. Of these the Calidonia Sasardi-Morti route about 110 miles east of the present Panama Canal appears to offer the greatest advantages from the cost standpoint. The Atrato-Truando route in Colombia, near the Colombia-Panama border, is more advantageous in some respects, however it would involve a canal almost twice as long and would cost considerably more.

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more. Both of these routes offer excellent possibilities but the Calidonia route has been selected as the optimum route.

"It is estimated that a canal can be constructed at the Calidonia site at a cost of \$750 million and at the Atrato-Truando route for \$1.25 billion. These costs are a fraction of the cost by conventional construction methods.

"This project appears to be feasible and cost of the project is estimated to be far less than the cost of providing the required interoceanic waterway by any other method. All operating costs of such a canal, including interest on the investment, could be recovered out of tolls revenues at present Panama Canal rates of tolls.

"VI. (f) DISPOSITION OF CANAL ZONE PROPERTIES

"A change in the present treaty with the Republic of Panama would be required before the United States could discontinue operation of the present Panama Canal. Such a treaty revision would undoubtedly cover the disposition of properties that are located within the Zone.

"Some of the non-military Canal Zone properties that would have greatest value to the Republic of Panama would be the deep water harbors and piers, the water systems that now supply water to Colon and Panama City, the hydroelectric and diesel engine power plants, complete housing developments for five thousand families, the transisthmian railroad, shipyards,

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industrial shops and buildings that might be converted to industrial uses, and many other lesser facilities, not to mention the military installations.

"It is assumed that the present canal would be rendered inoperable as a waterway before abandonment by the United States lest Panama operate it in competition with the Sea Level Canal. The lakes would be retained as they have great value as hydroelectric power reservoirs.

"Panama would suffer a terrific economic shock if she were deprived of the \$60 million that annually flows into her national economy as a result of the present Panama Canal operation.

"The vast transfers of property and the commercial and industrial potential inherent in the Canal Zone properties might stimulate business activities that would eventually offset this loss to some extent.

"Needless to say, the Sea Level Canal would provide a small contribution to the economy of the country in which it is located compared to lock-type canal operation."

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The REPORT concludes with this short resume of the three plans for improving the Panama Canal or of providing an alternative (a) sea-level canal in the present Zone or (b) a

Nicaraguan

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Nicaraguan lock canal (the cost figures are taken from a study of the Company completed a few months before the REPORT):

"IX. SUMMARY OF PROPOSED CONVENTIONAL CONSTRUCTION

"The Isthmian Canal Studies of 1947 were based on investigations of 30 possible canal routes and alignments through the American Isthmus. Painstaking care in the assembly, correlation and evaluation of the mass of information and statistical data characterized the studies of the Canal problem.

"Four of the Canal improvement plans from the 1947 studies and one other plan of lesser magnitude have been given careful study and are described in the report entitled ISTHMIAN CANAL PLANS, 1959, LONG RANGE STUDY.

"A brief description of each plan follows:

"Plan I, Improved Present Canal

"This plan provides essential improvements to the present Panama Canal. Modification of the locks to lessen the period of reduced Canal capacity during overhaul, and increasing the dimensions of the channel to a minimum of 500-foot width and 47-foot depth are the principal features of this plan. This plan provides capacity to handle greater numbers of ships but does nothing to increase the limiting width and draft of the locks. (Cost: \$61 million. COMMENT: Appropriation for implementing this plan will be made by this Congress.)

"PLAN II,

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"Plan II, Third Locks Canal

"This plan provides a third set of locks with chambers 140 feet wide by 1200 feet long and an improved channel 500 feet wide by 50 feet deep. The present locks would be continued in service. The added lock lane would be used to supplement capacity as needed and to handle the vessels that are too large to transit the present locks. (Cost: \$733 million.)

"Plan III, Consolidated Third Locks Canal

"This plan provides a third set of locks with chambers 200 feet wide by 1500 feet long and a channel 500 feet wide by 55 feet deep. Under this plan an additional level would be added to the existing Miraflores Locks which would raise Miraflores Lake to the level of Gatun Lake and Pedro Miguel Locks would be removed. The present locks would be continued in service to handle all except the largest vessels. The added lock lane would be used to supplement capacity as needed. (Cost: \$1,020 million.)

"Plan IV, Sea Level Canal

"This plan provides a sea level canal within the present Canal Zone. A channel 600 feet wide and 60 feet deep, with necessary floor control structures, would follow the general alignment of the present Panama Canal, but the curvature would be reduced. No tidal control structures would be included in the

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in the initial project. Gatun Lake would be drained and the present lock Canal would be completely abandoned except for portions of the present channel which would coincide with the alignment of the sea level canal. Many of the present Panama Canal facilities would be excess to the reduced support requirements of the sea level canal. (Cost: \$2,368 million)

"Plan V, Nicaragua Lock Canal

"This plan provides a lock type canal across the American Isthmus utilizing Lake Nicaragua at elevation 110 feet above sea level and providing two parallel one-lane, 2-lift locks on the Pacific coast near the town of Brito and on the Atlantic coast near Greytown. The lock chambers would be 200 feet wide by 1500 feet long by 50 feet deep and the channel would have a controlling depth of 55 feet and a width of 500 feet. (Cost: \$4,095 million.)

SUMMARY OF PROPOSED PLANS

"As stated above, Plan I is only an interim measure which will provide needed improvements to the present canal. Completion of the major features of the plan is scheduled in 1965. The Third Locks Plan, Consolidated Third Locks Plan, and Nicaraguan Lock Canal Plan provide greater capability to handle larger ships but involve all of the disadvantages of lock canals, including high operating costs.

"The Sea Level Canal is the only satisfactory long-range  
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solution to the problem. This conclusion was reached in 1947 and was reaffirmed in the 1959 studies. The cost of construction, by convention methods, is the only deterrent to adoption of this logical recommendation."

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COMMENT: The same study estimates the cost of the preferred sea-level canal across the Panamanian Isthmus at \$750 million (if nuclear explosives are used) and that across Colombian territory at \$1,250 million. Comparison of these cost figures indicates that the preferred sea-level canal could be built at roughly the same price as the third lock improvements (\$733 million), at less than the improvements under Plan I (\$61 million) soon to be underway and the third lock improvements, and at considerably less than the enlarged third lock plan outlined in Plan III.

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