

August 2, 1973

CRS MAIN FILE COPY
CONGRESSIONAL RECORD — SENATE

TC 774
S 15405

automobile, or both, as the Commission shall by regulation prescribe.

PENALTIES

SEC. 5. (a) (1) Violation of the provisions of section 4(a) (1) of this Act or any regulation promulgated pursuant to such section is a misdemeanor punishable by a fine not in excess of \$5,000 for each day in which any delivery of such gasoline is made.

(2) Violation of the provisions of Section 4(a) (2) of this Act or any regulation promulgated pursuant to such section is a misdemeanor punishable by a fine not in excess of \$100 for each day on which any sale of such gasoline is made.

(3) Violation of the provisions of Section 4(a) (3) of this Act or any regulation promulgated pursuant to such section is a misdemeanor punishable by a fine not in excess of \$5,000 for each publication of an advertisement.

(4) Violation of the provisions of Section 4(b) of this Act or any regulation promulgated pursuant to such section is a misdemeanor punishable by a fine not in excess of \$300 for the sale of an automobile by a manufacturer, and not in excess of \$100 for the sale of an automobile by a person other than the manufacturer.

(b) Violation of any provision of this Act or any regulation promulgated under this Act is an unfair or deceptive act or practice in commerce under Section 5(a) (1) of the Federal Trade Commission Act [15 U.S.C. 45 (a) (1)].

COMMISSION STANDARDS, STUDIES AND ENFORCEMENT

SEC. 6 The Commission shall—

(1) establish standard methods to measure octane and to establish other methodologies and testing procedures to insure the purity and content of gasoline;

(2) conduct a full and complete study of the quality of performance of various brands of gasoline of which substantial sales in interstate commerce are made, the impact of such gasoline on automobile deterioration, and the feasibility of standardizing gasoline formulae, and report the findings of such study to the Congress;

(3) require manufacturers of gasoline which has been moved or is intended to be moved in interstate commerce or in commerce affecting interstate commerce to provide adequate substantiation of any claim advertised with respect to the performance or such gasoline or any additive, and

(4) perform spot tests of the quality of various brands of gasoline which has been moved in interstate commerce or in commerce affecting interstate commerce and provide semi-annual reports on the testing procedure and the results disclosed by such tests.

EXEMPTION FROM FEDERAL REPORTS ACT

SEC. 7. The requirements of the Federal Reports Act of 1942 (44 U.S.C. 3501 et. seq.) shall not apply to any forms issued by the Commission in connection with this Act. Should the Commission issue any public use forms to ten or more companies the Commission shall seek the advice of the Comptroller General as to the formulation of the form and collection methods prior to issuance.

TIME FOR ISSUANCE OF REGULATIONS

SEC. 8. The Commission shall issue regulations prescribing the form, content, and location of the information required under Section 4 not later than one year after the enactment of this Act.

EFFECTIVE DATE

SEC. 9. This Act shall take effect one year after the date of enactment, except that Sections 6 and 7 shall take effect on the date of enactment.

AUTHORIZATION OF APPROPRIATIONS

SEC. 10. There are hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

SECTION-BY-SECTION ANALYSIS OF THE CONSUMER FUEL DISCLOSURE ACT OF 1973

Sec. 2 *Purposes*—To assist consumers in the purchase of automobile gasoline by providing necessary information regarding octane and additives.

Sec. 3 *Definitions*.

Sec. 4 *Disclosure Provisions*—(a) (1) & (2) This section provides a system whereby the octane rating of automotive gasoline is required to be disclosed to each party in the wholesale-retail marketing and distribution chain. Also to be disclosed is such other information about additives and content as the FTC may require. All sales other than to the ultimate consumer must be accompanied by a certificate in writing of the octane rating and other necessary information regarding the gasoline. Similar information must be posted on the gasoline pump. The FTC is authorized to enact standards regarding the manner and form of the disclosures.

(3) All advertising concerning gasoline must disclose the octane rating and other information the FTC may require.

(4) Requires automobile manufacturers to notify the consumer of the appropriate octane rating for gasoline to be used in the engine of each new automobile produced, according to regulations to be promulgated by the FTC.

Sec. 5 *Penalties*—Violations are misdemeanors punishable by fines varying from \$100 to \$5000, depending on the offender. FTC and Justice Department can enforce the Act.

Sec. 6 Commission Standards, Studies & Enforcement—

(a) Authorizes and requires the FTC to establish standards to measure octane and other additives to gasoline.

(b) Authorizes an FTC study of gasoline formulae and the feasibility of standardization.

(c) Authorizes the FTC to require advertising substantiation of gasoline performance claims.

(d) Authorizes the FTC to conduct spot tests of gasoline and provide semi-annual reports to Congress on the results of the tests.

Sec. 7 *Exemption From Federal Reports Act*—This section exempts forms produced by the FTC in connection with this Act from the requirements of the Federal Reports Act of 1942.

Sec. 8 *Issuance of Regulations*—Requires the FTC to issue regulations under Sec. 4 not later than one year from enactment.

Sec. 9 *Effective Date*—The Act takes effect one year from date of enactment, except that Sections 6 and 7 shall take effect on the date of enactment.

Sec. 10 *Authorization of Appropriations*—Authorizes such sums as are necessary to carry out the provisions of the Act.

By Mr. TOWER:

S. 3229. A bill to amend chapter 5 of title 37, United States Code, to revise the special pay structure relating to certain members of the uniformed services. Referred to the Committee on Armed Services.

Mr. TOWER. Mr. President, during the past year, the Department of Defense has moved toward an all-volunteer Army with commendable expediency and with a minimum of disruption. Vigorous recruitment, pay raises, and changes in personnel policies have enabled the services to approach their enlistment goals in terms of numbers as well as quality. However, we may still anticipate difficulties in meeting critical manpower needs, such as health professionals; therefore, I rise to introduce a bill which would provide special pay for physicians, dentists, and

other health professionals for which the Secretary found there to be a critical need.

Although it is true "that an army moves on its stomach," I feel that the provision of medical services is no less essential. We must take any and all necessary steps to insure that our Nation's armed services are served by healthy men and women. Special pay, and other programs, are all designed to provide sufficient health manpower, which if properly deployed, can meet the health care needs of members of the armed services.

During the 92d Congress, we passed H.R. 2, which provides for the establishment of the health university of the uniformed services capable of producing 100 medical students per year by 1982. To provide health personnel during the interim years and to supplement the efforts of the university when it is established, the law provides for 5,000 health scholarships. The scholarships pay for tuition, laboratory fees, books, and a monthly stipend. In return, the student accepts an obligation of 1 year of service for each year or portion thereof during which he receives a subsidy. During the first year, the interest in the scholarship program has been high. The willingness of students to commit themselves, at least for a minimum number of years, will greatly assist the armed services in meeting its health manpower needs during the seventies.

Nevertheless, in order to provide the armed services with senior medical officers capable of providing leadership and continuity, we must also address the issue of retention. A health professional considers many things when deciding whether or not to remain in the service. These include continuing education, duty assignments, methods of practice, and salary. If we are to retain experienced medical personnel, we must address these concerns. The establishment of the university should enhance the quality of medicine practiced in the service. Programs to expend the opportunities for continued education will greatly enhance the attractiveness of a career in the Armed Forces. Longer tours of duty and duty assignments consistent with a physician's specialization are other improvements which should be undertaken wherever possible. Freeing health professionals from clerical and administrative chores as well as providing them with the support of well-trained allied health manpower teams will greatly enhance the attractiveness of a medical practice in the military. Finally, pay must be considered in order to reduce the great disparity which exists between the pay for military officers and that of civilian practitioners.

We can no longer correct deficiencies in the delivery of health care in the Armed Forces by drafting an additional number of physicians as cheap, temporary, professional help. We must undertake those programs necessary to assure an experienced, competent and dedicated corps of health professionals.

By Mr. THURMOND:

S. 2330. A bill to provide for the increase of capacity and the improvement of operations of the Panama Canal, and

for other purposes. Referred to the Committee on Armed Services.

Mr. THURMOND. Mr. President, I am today introducing a bill for the major modernization and improvement of the Panama Canal. This bill is identical to H.R. 1517, introduced in the House by Mr. Flood of Pennsylvania, and similar to the measures for the enactment of the Terminal Lake-Third Locks plan which I have introduced in previous Congresses. I ask unanimous consent that it be printed in the Record at the conclusion of my remarks, and that it be referred to the Armed Services Committee as were its predecessors.

The advantages of this proposal are primarily twofold. On the technical side, it would increase the capacity both in regard to the size of vessels and the number of transits, and on the diplomatic side, it would provide an opportunity to strengthen our present troubled relationship with Panama.

Mr. President, the advantages of the Terminal Lake-Third Locks plan are such that it has been strongly endorsed this month by the largest organization of American flag shipowners, the American Maritime Association. I have also received a lengthy letter endorsing the plan from Constantine G. Gratsos, executive vice president of Victory Carriers of New York. Victory Carriers is the American flag line of the Aristotle Onassis worldwide shipping interests, and thus the letter carries with it in the maritime field the prestige of Mr. Onassis' expertise.

Mr. President, I ask unanimous consent that the letter from Mr. Gratsos also be printed in the Record at the conclusion of my remarks.

Before I go into detail about the technical improvements proposed in my bill, I would like to touch briefly upon its impact on international affairs. As everyone knows, our relationship with Panama has been aggravated by uncertain and dubious policies pursued by the U.S. State Department, and by calculated anti-Americanism on the part of certain elements in Panama. A massive undertaking such as this would afford many opportunities to work closely with constructive elements in Panama and improve the standard of living for every level of Panamanian society. Moreover, when completed, the plan would maximize employment of Panamanian citizens in Canal operations.

The question of new treaties with Panama is largely irrelevant to the undertaking of the improvements proposed in my bill. The juridical history clearly shows that such improvements would not change the basic alignment of the Canal Zone boundaries and thus would require no new treaties for construction to begin. In fact, the State Department has recently reiterated that the United States interprets the Treaty of 1903 as granting the United States by implication the right to expand the Panama Canal within the boundaries of the Canal Zone. The State Department went on to point out that this right was asserted and accepted by Panama in 1939 when construction was started on the earlier Third Locks project, a project which was stopped by World War II.

In my judgment, it would be rash in the extreme to disturb our historic sovereign rights in the Canal Zone. On the other hand, the guidelines for the present negotiations include the stipulation that any final treaty would have to contain permission to implement the Terminal Lake-Third Locks plan. When the major modernization program goes forward, Congress would merely be adding this new factor to its overall consideration of the merits of a new treaty.

The Terminal Lake-Third Locks plan has two closely related basic features: The increase of lock capacity; and operational improvement. The two aims are achieved hand in hand.

As those familiar with the Panama Canal know, the canal consists of a fresh water channel 87 feet above mean sea level. This channel was created by the damming of the Chagres River near its outlet into the Caribbean. On the Atlantic end, a vessel rises to the summit level by three lifts of locks grouped together. There are two lanes of these triple lifts. The vessel then crosses Gatun Lake, the artificial lake, until it comes to Gaiard Cut. This is a narrow channel, originally 300 feet wide, but recently widened to 500 feet, cut through the rock of the continental divide.

This narrow channel ends in the bottleneck of the Pedro Miguel locks. At Pedro Miguel, there is a one-lift lock, down to the level of Miraflores Lake. The vessel crosses this small lake to the Miraflores locks, which consist of two steps down to sea level.

This arrangement was a major flaw in the design of the original canal. As the vessel approaches the narrow bottleneck of the Pedro Miguel locks, it may experience navigational problems slowing down or stopping in a narrow channel. Studies have shown that there is a disproportionate number of accidents in this area. Only a few months ago, a Republic of China registry vessel, the *Shozan Maru* was removed after having been sunk near the bank near Pedro Miguel for nearly 2 years. Because of legal and engineering problems, the vessel remained a hazard to navigation during that period.

Moreover, once a vessel gets past Pedro Miguel, it must go through the operational procedures for locking once more at Miraflores locks. At the Atlantic end, the three lifts can be done in one coordinated operation, but at the Pacific end, the operation must be done twice.

The major feature of the Terminal Lake-Third locks plan is that it would raise the level of Miraflores Lake to the summit level, and reconstruct the locks in triple-lift fashion near Aguadulce. The Pedro Miguel locks—and the bottleneck—would be removed. The vessel could pass into a terminal lake for anchorage or maneuvering preparatory to entering the locks, and then pass through the triple-lift locks in one coordinated operation. This would speed up operations and reduce navigational hazards.

Two lanes of the new Pacific locks would be the same dimensions as at present—110 feet by 1,000 feet. A third lane—the so-called Third Locks—would be added with dimensions 140 feet by 1,200 feet. At the Atlantic terminal, the present

locks would remain, while a third lane would be constructed with dimensions of 140 feet by 1,200 feet. Thus the arrangement at each end would be symmetrical.

The new locks would be constructed in the excavations which were begun in 1941 for the earlier Third Locks project at each end of the canal and upon which \$76 million was spent. The excavations, as I pointed out earlier, were halted as a result of developments in World War II, a fortunate circumstance, since further study revealed important errors in overall design. All of the work done in these excavations would be usable in the revised Terminal Lake-Third Locks plan.

These new dimensions were arrived at after years of study as the best compromise between economy in construction, prudent use of water resources, and the toll structure. While it would not allow the passage of the big supertankers, it must be recognized that most of these vessels were designed for trade routes for which no transit of the Canal would be required. For example, the large crude oil carriers which we are now building, all in excess of 225,000 tons, will be used to bring oil from the Persian Gulf area to deep water facilities off the U.S. east coast. Moreover, the economies of scale with the big supertankers are such that tolls at any reasonable level—and even in a sea level canal—would be so high per transit that it would be cheaper to pay the costs of sailing around the capes rather than to transit the canal.

The proposed dimensions would accommodate virtually all ships in the U.S.-flag merchant fleet today, and most in the world fleet. At present the canal dimensions limit transits to ships of a maximum of 60,000 to 80,000 tons. The proposed dimensions would limit transits to ships of 120,000 tons laden, and 100,000 tons lightened. This would enable the use of 120,000-ton ships to carry liquified natural gas from Siberia and Alaska to the east coast. It would also allow any crude oil from the Alaska pipeline which is in excess of the west coast requirements to be carried efficiently to refiners in gulf ports, east coast, or Puerto Rico.

It has been estimated that the present capacity of the canal will be reached by the end of this century. But present estimates are now being rapidly downgraded because of a new shipping phenomenon that has emerged in the past year—the rapid increase of ships being built to fit the present canal maximum dimensions. These new vessels, referred to as Panamax ships, have been engineered to take advantage of the maximum benefits obtained through canal passage. The first of these, the *Tokyo Bay*, which made its maiden transit last year, has a clearance of only 18 inches on each side in the locks. The Panama Canal Co. handles these transits with consummate skill and safety, but they take infinitely more care and attention.

Moreover, the proposed new dimensions would undoubtedly stimulate the construction of what might be called Panamax II ships. Panamax II ships would change the patterns of shipping to more efficient configurations that do not show up in current projections and estimates. In combination with container-

ization, the net advantage to the U.S. consumer would be significant.

I would also like to mention briefly that the Terminal-Lake-Third Locks plan would preserve the existing ecology of the Isthmus. The fresh water of the canal maintains the centuries-old barrier between the Atlantic and Pacific oceans. The development of salt water species in each ocean has proceeded independently, and scientists are convinced from observation and experiment that the mixture of the species, as would occur with a sea level canal, could have a devastating effect on valuable species that are not used to coping with predators from another ocean. This topic was covered not long ago in a major symposium at the Smithsonian Institution—which has a research station in the Canal Zone working on the problem. More recently, the biological hazards of the sea-level canal proposal were discussed at length last September at the International Scientific Congress at Monaco.

The disappearance of even one species which is an important protein supply to world food needs could be tragic. As an example, the American housewife is already feeling the effects of the disappearance of Peruvian anchovies, apparently from overfishing, which were a major source of cheap fishmeal for chicken feed. Opening up the isthmus to a sea-level passage could well be opening up a Pandora's box for the world's food supply.

The Terminal Lake-Third Locks plan would provide needed improvements in the canal's capacity without disturbing the ecology of the region. For this reason, major environmental groups look upon the Terminal Lake-Third Locks plan as a positive step in averting ecological disaster.

Mr. President, the energy crisis is not the only situation that is causing us to revise the estimates of future world shipping. The food crisis is also going to be an important factor in U.S. trade. It now appears that the United States will be the largest exporter of food in the world. Already most cargoes that either enter or leave U.S. ports pass through the canal going or coming. The importance of the canal to our future export economy will bring about a new appreciation of its role in enhancing our national security.

The Terminal Lake-Third Locks plan was developed in the Panama Canal organization as a result of World War II experience, and has won the support of important maritime interests, experienced navigators and engineers. It is still recognized as the only practical alternative to proposals for a sea-level canal, and is the only feasible economic improvement plan, period. In commenting on the advantages of the Terminal Lake-Third Locks plan, Canal Zone Gov. David S. Parker summarized its advantages from an engineering point of view:

It would cost considerably less than a sea-level canal. Navigation through such a canal would be relatively simple because it would make use of the existing Gatun Lake, avoiding the currents and initially narrow channel of a sea-level canal. It would not alter materially the ecology of the area, Gatun Lake would be retained in its present

form, and there would be a barrier to the movement of biota from one ocean to another.

The letter of Mr. C. G. Gratsos, which I mentioned earlier, is also specific, from a navigational point of view. Mr. Gratsos says:

Ever since the opening in 1914 of the canal, thoughtful mariners have often asked why the Atlantic end of the Canal has only one group of 3-lift locks to raise vessels from sea level to the Gatun Lake level, about 85 feet high, while at the Pacific end of the Canal there are two groups of locks separated by a small intermediate level Miraflores Lake, 54 feet above mean sea level.

These experienced navigators generally recognize the differences between the two ends of the canal and have often reported to their operating companies about the double set of difficulties experienced when transiting the Pacific Locks. I have observed these difficulties from personal observation during transit of the Canal.

Mr. Gratsos concludes as follows:

The recommended modernization program involves much work; two years for planning and about eight years for construction. Prompt passage of the bill is recommended.

Mr. President, my bill would provide for the construction of the project as described, for the appointment of a Panama Canal Advisory and Inspection Board to review and approve all plans for construction, and for the authorization of \$950 million, of which \$45 million would be the initial appropriation.

There being no objection, the bill and material were ordered to be printed in the RECORD, as follows:

S. 2330

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Panama Canal Modernization Act."

SEC. 2. (a) The Governor of the Canal Zone, under the supervision of the Secretary of the Army, is authorized and directed to prosecute the work necessary to increase the capacity and improve the operations of the Panama Canal through the adaptation of the Third Locks project set forth in the report of the Governor of the Panama Canal, dated February 24, 1939 (House Document Numbered 210, Seventy-sixth Congress), and authorized to be undertaken by the Act of August 11, 1939 (53 Stat. 1409; Public Numbered 391, Seventy-sixth Congress), with usable lock dimensions of one hundred and forty feet by one thousand two hundred feet by not less than forty-five feet, and including the following: elimination of the Pedro Miguel Locks, and consolidation of all Pacific locks near Agua Dulce in new lock structures to correspond with the locks capacity at Gatun, raise the summit water level to its optimum height of approximately ninety-two feet, and provide a summit-level lake anchorage at the Pacific end of the canal, together with such appurtenant structures, works, and facilities, and enlargements or improvements of existing channels, structures, works, and facilities, as may be deemed necessary, at an estimated total cost not to exceed \$950,000,000, which is hereby authorized to be appropriated for this purpose: *Provided, however, That the initial appropriation for the fiscal year 1974 shall not exceed \$45,000,000.*

(b) The provisions of the second sentence and the second paragraph of the Act of August 11, 1939 (53 Stat. 1409; Public Numbered 391, Seventy-sixth Congress), shall apply with respect to the work authorized by subsection (a) of this section. As used in such Act, the terms "Governor of the Panama

Canal", "Secretary of War", and "Panama Railroad Company" shall be held and considered to refer to the "Governor of the Canal Zone", "Secretary of the Army", and "Panama Canal Company", respectively, for the purposes of this Act.

(c) In carrying out the purposes of this Act, the Governor of the Canal Zone may act and exercise his authority as President of the Panama Canal Company and may utilize the services and facilities of that company.

SEC. 3. (a) There is hereby established a board, to be known as the "Panama Canal Advisory and Inspection Board" (hereinafter referred to as the "Board").

(b) The Board shall be composed of five members who are citizens of the United States of America. Members of the Board shall be appointed by the President, by and with the advice and consent of the Senate, as follows:

(1) one member from private life, experienced and skilled in private business (including engineering);

(2) two members from private life, experienced and skilled in the science of engineering;

(3) one member who is a commissioned officer of the Corps of Engineers, United States Army (retired); and

(4) one member who is a commissioned officer of the line, United States Navy (retired).

(c) The President shall designate as Chairman of the Board one of the members experienced and skilled in the science of engineering.

(d) The President shall fill each vacancy on the Board in the same manner as the original appointment.

(e) The Board shall cease to exist on that date designated by the President as the date on which its work under this Act is completed.

(f) The Chairman of the Board shall be paid basic pay at the rate provided for level II of the Executive Schedule in section 5313 of title 5, United States Code. The other members of the Board appointed from private life shall be paid basic pay at a per annum rate which is \$500 less than the rate of basic pay of the Chairman. The members of the Board who are retired officers of the United States Army and the United States Navy each shall be paid at a rate of basic pay which, when added to his pay as a retired officer, will establish his total rate of pay from the United States at a per annum rate which is \$500 less than the rate of basic pay of the Chairman.

(g) The Board shall appoint, without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, a Secretary and such other personnel as may be necessary to carry out its functions and activities and shall fix their rates of basic pay in accordance with chapter 51 and subchapter III of chapter 53 of such title, relating to classification and General Schedule pay rates. The Secretary and other personnel of the Board shall serve at the pleasure of the Board.

SEC. 4. (a) The Board is authorized and directed to study and review all plans and designs for the Third Locks project referred to in section 2(a) of this Act, to make on-site studies and inspections of the Third Locks project, and to obtain current information on all phases of planning and construction with respect to such project. The Governor of the Canal Zone shall furnish and make available to the Board at all times current information with respect to such plans, designs, and construction. No construction work shall be commenced at any stage of the Third Locks project unless the plans and designs for such work, and all changes and modifications of such plans and designs, have been submitted by the Governor of the Canal Zone to, and have had the prior approval of, the Board. The Board

shall report promptly to the Governor of the Canal Zone the results of its studies and reviews of all plans and designs, including changes and modifications thereof, which have been submitted to the Board by the Governor of the Canal Zone, together with its approval or disapproval thereof, or its recommendations for changes or modifications thereof, and its reasons therefor.

(b) The Board shall submit to the President and to the Congress an annual report covering its activities and functions under this Act and the progress of the work on the Third Locks project and may submit, in its discretion, interim reports to the President and to the Congress with respect to these matters.

SEC. 5. For the purpose of conducting all studies, reviews, inquiries, and investigations deemed necessary by the Board in carrying out its functions and activities under this Act, the Board is authorized to utilize any official reports, documents, data, and papers in the possession of the United States Government and its officials; and the Board is given power to designate and authorize any member, or other personnel, of the Board, to administer oaths and affirmations, subpoena witnesses, take evidence, procure information and data, and require the production of any books, papers, or other documents and records which the Board may deem relevant or material to the performance of the functions and activities of the Board. Such attendance of witnesses, and the production of documentary evidence, may be required from any place in the United States, or any territory, or any other area under the control or jurisdiction of the United States, including the Canal Zone.

SEC. 6. In carrying out its functions and activities under this Act, the Board is authorized to obtain the services of experts and consultants or organizations there in accordance with section 3109 of title 5, United States Code, at rates not in excess of \$200 per diem.

SEC. 7. Upon request of the Board, the head of any department, agency, or establishment in the executive branch of the Federal Government is authorized to detail, on a reimbursable or nonreimbursable basis, for such period or periods as may be agreed upon by the Board and the head of the department, agency, or establishment concerned, any of the personnel of such department, agency, or establishment to assist the Board in carrying out its functions and activities under this Act.

SEC. 8. The Board may use the United States mails in the same manner and upon the same conditions as other departments and agencies of the United States.

SEC. 9. The Administrator of General Services or the President of the Panama Canal Company, or both, shall provide, on a reimbursable basis, such administrative support services for the Board as the Board may request.

SEC. 10. The Board may make expenditures for travel and subsistence expenses of members and personnel of the Board in accordance with chapter 57 of title 5, United States Code, for rent of quarters at the seat of government and in the Canal Zone, and for printing and binding as the Board deems necessary to carry out effectively its functions and activities under this Act.

SEC. 11. All expenses of the Board shall be allowed and paid upon the presentation of itemized vouchers therefor approved by the Chairman of the Board or by such other member or employee of the Board as the Chairman may designate.

SEC. 12. There are hereby authorized to be appropriated to the Board each fiscal year such sums as may be necessary to carry out its functions and activities under this Act.

SEC. 13. Any provision of the Act of August 11, 1939 (54 Stat. 1409; Public Numbered 391, Seventy-sixth Congress), or of any

other statute, inconsistent with any provision of this Act is superseded, for the purposes of this Act to the extent of such inconsistency.

CONSTANTINE G. GRATSOS,
New York, N.Y., July 16, 1973.

Senator STROM THURMOND,
U.S. Senate,
Washington, D.C.

DEAR SENATOR THURMOND: As Executive Vice President of Victory Carriers, Inc., a New York based carrier, operating ships which utilize the Panama Canal, I would like to share some views with you which may be helpful in the consideration of legislation for the major modernization of the Panama Canal.

The value of having a waterway across the Isthmus has been recognized since the age of discovery. Saving about 8000 nautical miles for intercoastal voyages, its continued efficient operation is a manner of prime importance. Intercoastal commerce is concerned primarily with its continued safe, expeditious and convenient transit.

Ever since the opening in 1914 of the canal thoughtful mariners have often asked why the Atlantic end of the canal has only one group of 3 lifts locks to raise vessels from sea level to the Gatun Lake level, about 85 feet high, while at the Pacific end of the Canal there are two groups of locks separated by a small intermediate level Miraflores Lake, 54 feet above mean sea level.

These experienced navigators generally recognize the differences between the two ends of the canal and have often reported to their operating companies about the double set of difficulties experienced when transiting the Pacific Locks. I have observed these difficulties from personal observation during transit of the canal.

For more than half a century every vessel that has passed through the Pacific Locks has had to make two approaches, make fast twice to towing locomotives, and let go twice as compared to only once for these operations at Gatun. The Pacific arrangement has involved not only loss of transit time but has also added to the danger of marine accidents. Our ship masters have often stressed the marine operational benefits that would accrue from the consolidation of the Pacific Locks in three lifts as close to the seas as possible so as to correspond with the layout at Gatun.

The crucial tests of World War II and marine operational studies incident thereto made in the Panama Canal organization inspired the development by the personnel in that agency of a proposal for the future canal based upon navigational experience, known as the Terminal Lake-Third Locks Plan.

Because of its inherent advantages, which are perfectly obvious, it makes a strong appeal to thoughtful mariners and their principals as the only logical solution of the Canal question when all its main aspects are considered. In this connection, I would emphasize that any plan that does not eliminate the bottle neck locks at Pedro Miguel does not merit the support of the Merchant Marine and from our point of view would be useless.

The problem of increasing the capacity of the Panama Canal has two elements of great interest to the merchant marine; locks and transit capacity.

The usable dimensions of the present locks are 110 feet by 1000 feet by 41 feet. While these dimensions are sufficient for a majority of the vessels that transit, the number of larger ones is steadily increasing to such a point that even Panama Canal pilots have publicly complained about the locks being too small for some of the traffic.

The fact that the transit capacity can be increased by certain improvements is not enough. With the exception of the widened Gaillard cut the Canal is essentially what it was when opened to traffic 59 years ago.

Specifically, many ship masters have complained that the location of the Pedro Miguel Locks squarely across the mouth of Gaillard cut causes problems and loses time. Those who have studied the subject almost uniformly urge the elimination of these locks for an adequate modernization. As previously indicated, any plan that does not provide for the physical removal of these locks cannot solve the marine problems of the Canal. Instead it would perpetuate what experience has shown to have been the fundamental error in the design of the Panama Canal—the separation of the Pacific Locks.

What is needed for the Panama Canal is a two way ship channel through the continental divide with a traffic reservoir in the summit level at each end.

The reservoir at the Atlantic end is supplied by Gatun Lake; the needed basin at the Pacific end would be provided by the elevated Miraflores Lake. And such a canal would be the best canal for the transit of vessels and it would be provided by your bill. The recommended modernization program involves much work: two years for planning and about eight years for construction. Prompt passage of the bill is recommended.

In addition to the increase in capacity and safety provided by the Terminal Lake-Third Locks Plan ships would obtain the added benefit of an increase of the water supply which would reduce the present problems caused by seasonal shortages of water.

Major modernization of the Panama Canal would be expensive, of course. But as time goes on costs would inevitably increase so that it is mandatory to undertake the project at the earliest moment. Panama Canal tolls can be raised within reason, and I believe that any increase in tolls should be allocated toward the improvement of the canal, not only for the benefit of American Shipping but for the commerce of the entire world.

Sincerely,

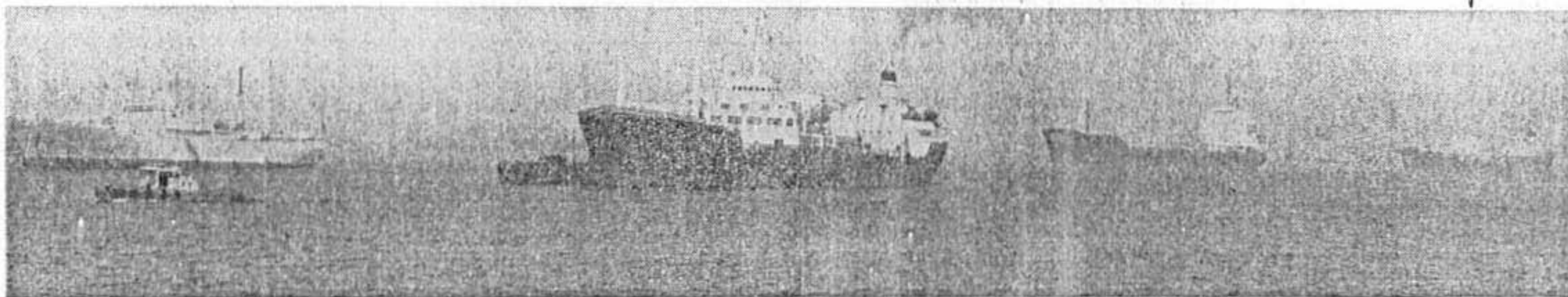
C. G. GRATSOS.

By Mr. THURMOND:

S. 2331. A bill to transfer the functions of the Passport Office to a new agency of the Department of State to be known as the "United States Passport Service", to establish a Passport Service Fund to finance the operations of the United States Passport Service, and for other purposes. Referred to the Committee on Foreign Relations.

Mr. THURMOND. Mr. President, the bill which I am introducing today would provide three much needed changes in the structure of a vital public service organization, the Passport Office of the Department of State.

The bill provides first for an organizational change which recognizes the importance of this public service in the hierarchy of the State Department. It would establish a U.S. Passport Service within the Department of State with a Director responsible directly to the Secretary of State for the administration of the service. The structure of the service would be comparable to the Immigration and Naturalization Service in the Department of Justice and it would clear away some of the bureaucratic deadwood which has consistently impeded the progress of the Passport Office. The Passport Office is presently a constituent office of the Bureau of Security and Consular Affairs which is responsible through the Under Secretary for Management to the Secretary for its administration. This bureau, which is largely foreign service oriented is not



The Ocean Queen, center, and other ships at the Coast Guard's anchorage in the Stapleton Channel in the Narrows, off Staten Island, north of the Verazzano Bridge

The New York Times

Proposed Sea Level Panama Canal Gets Little Support From Shipping Interests

Special to The New York Times

WASHINGTON, July 22 — Construction of a proposed sea level Panama Canal, recommended by a Presidential commission in 1970, received little support from shipping interests and the Governor of the Canal Zone in a Congressional hearing last week.

The views came in the first of a series of hearings before the Panama Canal Subcommittee of the House Merchant Marine and Fisheries Committee. The subcommittee, according to its chairman, Representative Robert L. Leggett, Democrat of California, is trying to ascertain the economic value of the canal to the United States and other nations.

Reluctant Shippers

Areas that the subcommittee hopes to investigate include the importance of the canal to shipping interests, present and future commodities shipped through the canal, possible revision of tolls, the adequacy of the canal and future shipping requirements for the canal to the year 2000.

While shipping interests emphasized the past importance of the canal, they were reluctant to endorse the new sea level waterway, which has been estimated to cost \$3-billion to \$10-billion.

Albert E. May, representing the American Institute of Merchant Shipping, told the subcommittee that a poll of his 34-member organization last year disclosed that a majority of those responding indicated that a new waterway or modernization of the present canal would not increase their use of either canal.

"Support for a sea level canal was far less than I anticipated," Mr. May said.

The proposed canal, to be built 10 miles from the present 51-mile waterway, was recom-

mended in late 1970 after five-year, \$22-million study by the Atlantic-Pacific Inter-oceanic Canal Study Commission. The cost was then estimated at \$2.8-billion, not including right-of-way payments to Panama.

No Urgent Necessity

Alfred Maskin, a representative of the American Maritime Association, had similar views of the waterway. Mr. Maskin said that "there would appear to be no urgent economic necessity for the construction of an entirely new canal."

Although proponents of the new waterway call it "economically marginal," they believe it would provide a chance to develop better relations with

Panama through a new treaty. Such a canal, they feel, would offer higher long-term capacity and would be relatively indestructible because it would have no locks.

But Mr. Maskin said the new canal would not be able to handle ships of more than 150,000 tons. And he feared that a new canal would raise tolls and require a new treaty with Panama. Talks between the United States and Panama are stalled over possible renegotiation of the original 1903 treaty.

David S. Parker, Governor of the Canal Zone and president of the Panama Canal Company, told the subcommittee that he supported the recommendation

of a sea level canal "at the appropriate time."

"I have informally supported it," he said, adding that the new canal should be built "sometime" rather than by a specific date.

Governor Parker, a career officer in the Army Corps of Engineers, also questioned the "utility of going the third-locks route." The third-lock plan would change the lock system on the Pacific side of the canal, add a third lock on each end of the canal and allow larger ships than the present 65,000-ton limit through the waterway.

Representative Daniel J.

Flood, Democrat of Pennsylvania, has introduced a bill in the House asking for \$950-million over 10 years for the project. According to the legislation, the plan would add 10,000 trips to the canal's estimated annual maximum of 26,800. The annual ship transits for each of the last five years have been more than 14,000.

Project Called Unfeasible

But Governor Parker, in his rejection of the third-locks proposal, said he did not think the project was feasible economically, militarily or politically.

He maintained that the time

to switch to facilities for larger ships was some years away. Predicting that older and smaller ships "won't vanish," he said it would be "10 years before a decision has to be made."

A staff aide, asked if he was surprised by Governor Parker's opposition to the third-locks plan, said, "Weren't we all?" He added, "It looks like he would rather do nothing," referring to the proposed sea level canal and the expansion project.

The next hearings on the operations of the canal are scheduled for September or early October.

A SUPERIOR AMERICAN PRODUCT

Classic B

Fellman, Ltd.

hereby resolve to officially recognize said Martin Chase as founder of the discount department store industry.

Given this tenth day of February, 1972.

PANAMA CANAL PROBLEM: CON-FUSIONS CLARIFIED

Mr. TOWER. Mr. President, One of the most vital issues now before the Congress is the highly complicated interoceanic canal question. One aspect of special importance to all coastal states from danger involved in the construction of a new canal of so-called sea level design.

The final report of the sea-level canal study panel under Public Law 88-609 headed by Robert B. Anderson was submitted on December 1, 1970, to the President, who has taken no action thereon. This report recommended the construction of such canal in the Republic of Panama about 10 miles west of the existing canal at an initially estimated cost of \$2.88 billion, which does not include an indemnity to Panama or the cost of the right of way.

As the first step, the report urged the negotiation of a new canal treaty for a unified canal system consisting of a new canal. These negotiations are now in progress and involved the surrender of United States sovereignty over the Canal Zone to Panama, which has not been authorized by the Congress as required by Article IV, Section 3, Clause 2 of the U.S. Constitution.

On October 27, 1971, the 113th anniversary of the birth of President Theodore Roosevelt, I quoted in an address to the Senate a notable program of the Panama Canal Society of Washington, D.C., which included addresses on canal problems by Senator STROM THURMOND, of South Carolina, Representative DANIEL J. FLOOD, of Pennsylvania, and Dr. John C. Briggs, professor of biology, University of South Florida at Tampa. That by Dr. Briggs, one of the Nation's leading authorities on marine biology, was on the subject: Ecological Dangers of a Sea-Level Panama Canal.

Dr. Briggs, now director of graduate studies of the University of South Florida, has followed up that paper with another illuminating article entitled "The Sea-Level Panama Canal Proposal," published as a special feature in the March 1972 issue of the *Defenders of Wildlife News*, the bimonthly publication of the *Defenders of Wildlife*, a national educational organization dedicated to the preservation of all forms of wildlife with headquarters in Washington, D.C.

Dr. Briggs, in addition to pointing out the ecological dangers involved in the sea level proposal, particularly the possible infestation of the Atlantic Ocean with the poisonous yellow-bellied Pacific sea snake and the Crown of Thorns starfish, presents what he describes as an "attractive alternative," the major modernization of the existing Panama Canal according to what is known as the Terminal Lake-Third Locks Plan. This plan would preserve the fresh water barrier now existing between the Atlantic and Pacific Oceans and thus prevent the migration of marine life.

Mr. President, as the indicated paper

of Dr. Briggs should be of the highest interest to all Members of Congress, cognizant agencies of the executive, and the governments of other nations that may be affected ecologically or commercially by what happens at Panama, I ask unanimous consent that it be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

THE SEA-LEVEL PANAMA CANAL PROPOSAL

(By John C. Briggs)

"It is the capacity to predict the outcome of our own actions that makes us responsible for them and that therefore makes ethical judgment of them both possible and necessary"—George Gaylord Simpson.

In December, 1970, the Atlantic-Pacific Interoceanic Canal Commission presented its final report and recommendations to President Nixon. The report, a huge document of seven volumes, is the result of a five year study costing more than \$21 million. Its content should be of interest to all United States citizens for it recommends, in a persuasive manner, the undertaking of an enormous public works project—the construction of a sea-level canal across the Isthmus of Panama.

The cost of the proposed canal has been estimated at \$2.88 billion and this figure does not include the cost of indemnities that are certain to be demanded by the Republic of Panama. Such a canal would not only be the largest and most expensive water control project ever undertaken but it would be unique in other ways. First, and perhaps most important, the Commission has proposed that the canal be excavated entirely within Panamanian territory about 10 miles west of the Canal Zone (which is owned and controlled by the United States). To accomplish this, the Commission recommended that a new treaty be drawn up between the United States and Panama to create an Isthmian Canal System that would include both the existing canal and the new sea-level structure.

A second, and also important, facet of the sea-level canal proposal is its economic justification. Construction projects undertaken by the U.S. Army Engineers are required to show potential economic benefits great enough to justify the investment of the tax dollars needed for the work. In this case, the Canal Commission has not been able to demonstrate such justification. Its report admits that amortization of the construction cost from toll revenues may not be possible but states that the potential national defense and foreign policy benefits justify acceptance of a substantial financial risk.

MARINE BIOLOGICAL EFFECTS

In their report, the Canal Commission stated that, so far as they had been able to determine on the basis of limited studies, linking the oceans at sea level would not endanger the commercial or sport fish on either side of the Isthmus. The Commission also reached the conclusion that the potential for transfer of harmful biota and hybridization or displacement of species in both oceans exists but the risks involved appear to be acceptable. Unfortunately, these statements not only have no scientific basis but are inconsistent with the findings of a National Academy of Science Committee which examined the ecological implications of the proposed canal. In essence, the Committee warned that "great danger" could result and that if the canal had to be built elaborate precautions would be necessary to prevent migrations by marine animals.

The tropical marine waters of the Americas are divided by the New World Land Barrier, of which the Isthmus of Panama is a part, into two major segments, the Western Atlan-

tic and the Eastern Pacific. This separation has existed since the latest Pleistocene or the earliest Pleistocene—approximately three million years. During this time, sufficient evolutionary change has taken place so that the great majority of the animal populations on each side have become distinct from one another; that is, they have developed into separate species.

The marine faunas on either side of Central America are not only exceedingly rich, in terms of the diversity of species, but are relatively poorly known. At this time, one can only make a very rough guess as to the total number of species that are involved. The Western Atlantic portion appears to have the richest fauna. It has been estimated that the western Caribbean alone supports about 600 species of shallow water fishes and about 7800 species of invertebrates.

On the Eastern Pacific side, the Gulf of Panama and its adjacent waters are probably inhabited by about 400 fish species and about 5200 invertebrate species. In considering the possible effects of a sea-level canal upon this rich marine life, it is important to note that most of the fishes are, at least at some stage in their life cycle, highly mobile. Furthermore, 80-85% of the tropical, benthic invertebrates possess pelagic larval stages that are capable of moving, or can be transported by surface currents, for considerable distances. This means that a continuous, salt-water passage across Panama would present a migratory route that could be utilized by the majority of animal species on each side. What would be the consequences of such migrations?

As the distributional patterns of many animal species have become better known, an important zoogeographic principle has emerged. It is probably this principle that, in large part, determines the relationships of the major zoogeographic regions of the world. It may be stated as follows: Wherever two regions are separated by a barrier that is partially passable, the region with the richest (most diverse) fauna will donate species to the region with the lesser fauna but will accept few or no species in return. This principle appears to operate just as effectively in the marine environment as it does on land.

Although it would be a mistake to make a detailed prediction about the effects of a sea-level Panama canal entirely on the basis of our experience with the Suez Canal, the latter passage, which was opened in 1869, clearly demonstrates the operation of the principle stated above. To this date, no less than 30 species of Red Sea fishes and 110 species of invertebrates have succeeded in migrating through the Suez Canal to establish themselves in the eastern Mediterranean. But, with the single exception of one fish species that is especially adapted to live in high salinity lagoons, no Mediterranean animals have been able to successfully invade the Red Sea. The Red Sea, a part of the great Indo-West Pacific Region, possesses a considerably richer fauna than the Mediterranean.

The fact that relatively few Red Sea species have invaded the Mediterranean in somewhat over 100 years can be explained by the existence, for most of that time, of salinity and temperature barriers that severely restricted migration through the Suez Canal. In the case of the proposed Panama sea-level canal, no such barriers are anticipated so that rapid and numerous migrations may be expected.

Before making a prediction for Panama, one needs to consider a second zoogeographic (and ecological) principle that appears to be generally applicable. Along most mainland shorelines, as in most mainland terrestrial areas, each major habitat is probably supporting maximum number of species; that is, the species diversity has become attuned to the local environment so that ecological saturation has been achieved. In

such situations, the introduction of additional species can only temporarily increase the diversity and, over a period of time, the number of species present can be expected to drop back to its original level. This means that a species that has been introduced or has migrated into a new area may either survive in its new home by eliminating a species already there (its ecological equivalent) or it may meet so much resistance by the native species that it will be unable to establish itself.

In the advent of a sea-level canal across Panama, we may expect that, over the years, several thousand Atlantic species of shallow water, marine animals will succeed in reaching the Eastern Pacific and vice versa. Since these thousands of species that would be coming into contact for the first time are, for the most part, distinct from one another, we may expect that they would tend to enter into competition rather than hybridizing. Considering that the tropical Western Atlantic has a richer fauna than the Eastern Pacific, it can be predicted, in accordance with the two principles stated above, that the Atlantic species would prove to be the better competitors and would eventually eliminate their Eastern Pacific relatives.

It is the prospect of a huge and irrevocable loss of perhaps thousands of species native to the Eastern Pacific that constitutes the major biological problem presented by the Panama sea-level canal. In contrast, the fauna of the Western Atlantic may remain relatively little affected. However, there do exist in the Eastern Pacific a number of marine animals that originally came from the Indo-West Pacific, the largest and most diverse of all the tropical Regions. Among them are such animals as the poisonous sea-snake, *Pelamis platurus*, and the crown-of-thorns starfish, *Acanthaster planci*. It is expected that these animals would be capable of migrating through a salt-water canal and, once having gained access to the Atlantic, would establish themselves in that ocean.

Although it is very difficult for the biologist to accurately predict the results of invasion by a given animal species, many cases are known where the invader has undergone enormous population increases. The probability of such a population explosion by an introduced species appears to be greatly increased in areas where there are no native species occupying similar niches. At present there are no sea snakes in the Atlantic so the fish species there have not had to cope with this kind of predator. In a like manner, the coral species, that have built up the extensive coral reefs that are found from Florida to Brazil, have not been exposed to the actions of a voracious coral predator such as the crown-of-thorns starfish.

A small-scale example of what may happen when a new kind of predator gains access to a virgin area was provided by the sea lamprey, *Petromyzon marinus*, when it migrated through the Welland Canal to reach the western Great Lakes. The lamprey underwent a rapid population increase and decimated the native lake trout and whitefish populations. The damage to the commercial fisheries for the latter two species amounted to several million dollars and the United States and Canada had to spend additional millions in order to bring the lamprey under control.

There is no other place in the world where a single engineering project would be likely to have such drastic biological effects. Once a unique animal species disappears from the face of the earth it is gone forever and no amount of recrimination can replace it. Do we owe it to ourselves and our posterity to preserve as much of our natural heritage as possible? If so, let us consider very carefully the biological as well as the economic consequences of building a sea-level canal.

AN ATTRACTIVE ALTERNATIVE

When conservationists find it necessary to object to some engineering projects for ecological reasons they, more often than not, find themselves in the purely negative position of objecting to something without being able to offer any feasible alternatives. Fortunately, in the case of the Panama sea-level canal proposal, there is an attractive, simple, and economical alternative. The Terminal Lake-Third Locks Plan, now before Congress, has several distinct advantages: (1) we would still have a freshwater canal that would prevent migrations by marine animals, (2) capacity would be increased enough to provide 35,000 annual transits, about the same number that would be permitted by a sea-level canal, (3) no new treaties would be required since all the construction would take place in the Canal Zone which is already owned and controlled by the United States, and (4) the cost would be about \$850 million compared to \$2.88 billion for a sea-level structure.

COMPREHENSIVE OIL POLICY

Mr. MOSS. Mr. President, too often, countries make policy in bits and pieces, reacting from one crisis to the next. If we do not take positive action immediately to solve the energy crisis facing our Nation, we will find ourselves in more than an ordinary crisis. A policy anything less than comprehensive will not avert the great difficulty we will encounter if we do not plan now for the energy needs of the late 1970's and 1980's.

Marilyn Berger, a writer for the Washington Post, authored an article for last Sunday's Post outlining many of the difficult choices facing policymakers regarding foreign supplies of oil. The Middle East produced 1 million barrels of oil for use by the United States in 1970; by 1980, that figure will probably grow to between 8 and 10 million barrels. A successful policy will require very delicate diplomacy. We will be dealing with countries in the Middle East and South America which are proud of their independence and protective of their resources.

A coherent foreign policy emphasizing diplomacy must soon be established to guide our dealings with oil-producing nations. Marilyn Berger's article is a useful summary of the issues we will be facing in developing such a path. I ask unanimous consent that it be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

OIL, FOREIGN POLICY AND THE ENERGY CRISIS (By Marilyn Berger)

Two decades ago, when the demand for oil in this country was a fraction of what it is today, the United States was sufficiently worried about the government of oil-rich Iran to have a CIA sponsor a coup there. Today, with U.S. imports of Middle East oil rising—and with projections suggesting that 30 to 40 per cent of U.S. consumption will have to come from that unstable area by 1985—Washington faces the probable nationalization of all American oil companies there within a decade.

The takeovers are expected to be made by governments more or less friendly, more or less "reliable" and with compensation that is more or less satisfactory. And the United States, with its "lowered profile" abroad, is

not likely to be sponsoring any similar coups. The question of what the country can do is being widely debated in government and industry circles, especially since we are headed for an energy crisis.

While there are many ideas for alleviating the potential crisis by developing new sources of power, for the next decade and a half, in the words of one government consultant, there is "nothing but oil." And with domestic production having peaked, much of it will have to come from abroad. This is causing concern in dozens of government bureaus dealing in both foreign and domestic affairs and is currently the subject of a House committee hearing.

At the Commerce Department a major concern is the impact on the U.S. balance of payments. If current projections are correct, says Commerce Secretary Peter G. Peterson, the deficit on oil alone "could be \$8 billion by 1975 and \$15 billion by 1980."

State Department and Pentagon officials worry about the security of supplies from Arab countries that are in continuing confrontation with Israel. A day could come, they say, when the Arabs might act more forcefully on the proverb that the friend of their enemy is their enemy. Probably even more worrisome to them is the increasing Soviet influence in the Arab world.

The Treasury Department is concerned about the oil tax structure, the Interior Department about the development of alternate sources in shale and tar sands and on the continental shelf, and environmentalists are worrying even more about what that development would mean to the quality of American life.

"STUDYING IT TO DEATH"

It seems safe to say there is no basic raw material which so deeply affects American interests, domestic and foreign. It is unlikely that there is any industry that has had greater success in winning congressional support for its interests or greater entree into the highest levels of government, making any tampering with the existing system especially difficult during a presidential election year.

Perhaps this is one reason why everybody is talking about the energy crunch but nobody is doing much to solve it. As one lawyer working with a number of oil companies remarks: "They're studying it to death . . . The problem in the government now is that there are 43 agencies involved with energy."

The number 43 is not exaggeration; Interior Secretary Rogers C. B. Morton put the number at 61. Not only are studies being made by most of these agencies, but there are almost as many solutions as studies.

The State Department, in a still-secret report, has taken something of a lead in urging the government to take foreign and domestic actions ranging from development of alternatives to auto transportation to changing oil and gas price structures. So far no action has been taken on the study.

The President on June 4, 1971, sent Congress a message on energy resources. This, however, looks mainly toward a solution to problems in the 1980's and beyond and touches only peripherally on the oil shortage that's almost here.

The environmentalists suggest a solution that is attractive in its simplicity: Use less. "A lot of our energy problems will be solved if we stop doing what we're doing," says Stewart Udall, former Secretary of the Interior. "The country should look at its own resources and play the hand it was dealt. . . . For environmentalists the gut reaction is to slow things down."

In fact, virtually every solution to the oil supply problem creates difficulties for the environmentalists. If the United States is to import more oil—which the experts say it must—more and bigger tankers, deeper ports

The Biological Unknowns of a New Panama Canal

By Francis B. Kent

PANAMA CITY, Panama—Within a relatively short time, possibly before the end of the decade, U.S. engineers are expected to begin blasting a sea-level canal here from the Atlantic to the Pacific—without really knowing what the ecological consequences will be.

Guesses have been set forth. Engineers with little or no knowledge of biology tend to insist that nothing will happen. A number of scientists have responded with dire predictions that the interchange of marine life will have far-reaching and disastrous effects. No one, however, really knows. The hard information gathered here to date has established only that facts are in short supply, that the subject warrants much more intensive research.

Dr. Ira Rubinoff, a marine biologist at the Smithsonian Institute's Marine Research Laboratory here, has probably examined the problem more carefully than any other scientist. Years of collecting, mixing and observing species from both oceans have convinced him that providing free access from Atlantic to Pacific will indeed produce significant change.

"Some will suffer," he observes cautiously, "others will benefit. To what extent, we simply don't know."

J. C. BRIGGS of the University of Miami is one of those with a pessimistic outlook. In a paper published by the periodical *Science* he predicts the irrevocable extinction of thousands of species of marine life.

This point of view has been echoed in the U.S. Congress, notably Rep. Daniel J. Flood of Pennsylvania.

"Why," he demanded to know in a recent hearing before a House subcommittee, "does the State Department ignore the marine ecological angle involved in constructing a salt water channel between the oceans, which recognized scientists predict would result in infesting the Atlantic with the poisonous Pacific sea snake and a predatory Crown of Thorns starfish and have international repercussions?"

Dr. Rubinoff, an articulate, Harvard-trained New Yorker, concedes that the two predators would probably migrate to the Atlantic and would probably stir up some mischief. How much, he doesn't know, and he thinks no one else really knows.

The Crown of Thorns starfish, he told an interviewer, could cause extensive damage to the Atlantic coral reefs that support much of the commercially valuable shellfish in the area.

The reptile, commonly known as the yellow-bellied sea snake, preys on young fish, is eaten by virtually nothing and could, according to some experts, wreak havoc in the breeding grounds of scores of varieties of marine life.

Because high tide on the Atlantic side of the Isthmus of Panama rarely exceeds one and a half feet above the mean level, as opposed to 18 feet and more on the Pacific side, the migration would be largely from the Pacific to the Atlantic. In effect, Rubinoff said, creatures migrating to the Atlantic would thus get a free ride through the canal.

Once in the Atlantic, he said, the sea snake could be expected to move as far east as the English Channel, where the warm water of the Gulf Stream would permit it to survive. Roughly three feet long at maturity and about one inch in diameter, the sea snake has few equals in virulence. Its venom, Rubinoff estimates, is 50 times as potent as that of the fer-de-lance. Fish that make the mistake of eating the snake die immediately, presumably from internal wounds.

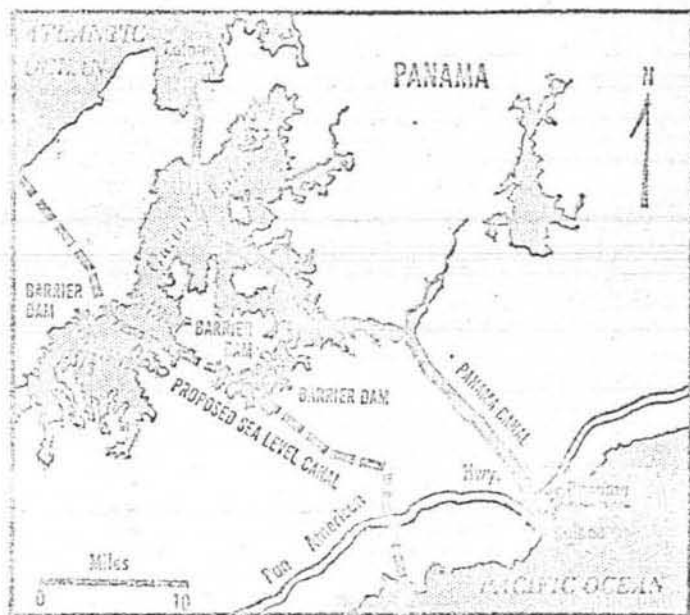
In connection with the project under consideration here, Rubinoff cites as a parallel the construction of Welland Canal, which links the western Great Lakes with the eastern Great Lakes and the Atlantic. This canal he says, gave the Atlantic lamprey access to Lakes Huron and Michigan. In time, the lamprey all but exterminated the lakes' white-fish and trout. The lamprey has forced the U.S. and Canadian governments to spend upward of \$12 million a year in joint efforts to control it, he adds.

To discourage interocean migration, Rubinoff is recommending the construction of a barrier, somewhat similar to the fresh water Galun Lake that effectively controls the migration of most species in the existing canal. But since a sea-level channel would permit no lake, Rubinoff suggests an artificial barrier of superheated water.

Not only would the barrier reduce and possibly eliminate the odds for a disastrous interchange, he contends, it would provide science with the opportunity to make a thorough study of marine life as it exists on both sides of the isthmus. If the canal is put

through without such a barrier, the opportunity would be lost forever.

Time is a factor. Although men have dreamed of a sea-level canal here since the Spanish first came ashore in the early 16th century, the pressure is now mounting rapidly to get one built. The present canal, which was opened to traffic in 1914, is rapidly becoming obsolete. Spokesmen for the canal company say it will probably be adequate through the end of the century but others question this estimate. Already some 1,400 huge bulk carriers are too long or too wide to fit into the canal's locks.



U.S. and Panamanian negotiators are described as nearing agreement on arrangements for the new canal and Rubinoff said the National Academy of Sciences has appointed a committee to evaluate the ecological problems.

© 1972, Los Angeles Times

The Washington Post

EUGENE MEYER, 1875-1939

PHILIP L. GRAHAM, 1915-1963

KATHARINE GRAHAM
Publisher

JOHN S. PRESCOTT, JR. BENJAMIN C. BRADLEY
President Executive Editor

Philip L. Geyelin, Editorial Page Editor; Howard Simons, Managing Editor; Gerald W. Siegel, Vice President and Counsel; Robert P. Thoms, Treasurer; Joseph P. Lynch, Vice President-Advertising; Jack P. Patterson, Circulation Director; Julian J. Eberle, Production Operations Director.

Published by The Washington Post Company:

FREDERICK S. BRICE
Chairman of the Board
KATHARINE GRAHAM
President

JOHN W. SWEETMAN
Vice Chairman of the Board

Snakes and Starfish May Bar a New Panama Canal

By Robert Enstad

Mr. Enstad is a Tribune reporter.

WASHINGTON—The yellow-bellied sea snake and the crown-of-thorns starfish could stand in the way of American attempts to build a new sea-level canal across Panama.

Ecologists and those opposed to the projected canal for other reasons have found a common rallying point in these two marine species.

At issue is whether marine life of the Atlantic Ocean and that of the Caribbean, which would be intermingled thru a new canal, are compatible with each other. Ecologists maintain that they are not and that serious environmental consequences would result from building an open salt water passageway thru the isthmus of Panama.

One of those who sees an "ecological disaster" in a new canal is William A. Dunson, a professor of biology at Pennsylvania State University and an authority on the highly-adaptable and poisonous sea snake.

A Risky Project

"The canal is an unacceptable risk unless it can be demonstrated that an effective system of barriers to prevent interoceanic movement of virtually all organisms is available," he said.

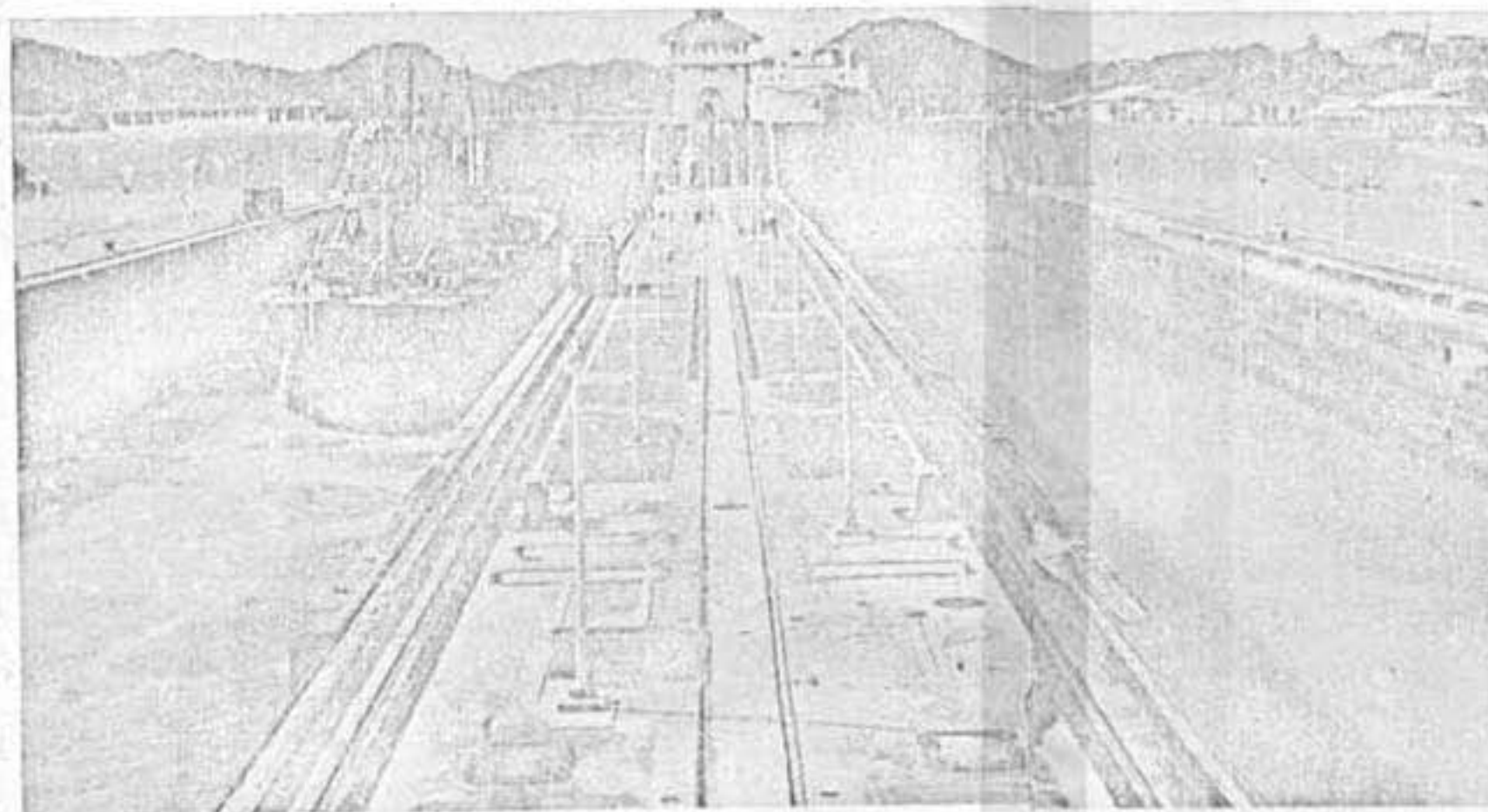
Proponents of the canal maintain there is little evidence to support the cries of the ecologists.

They point to an interoceanic study conducted by a Presidential commission last year, which said:

"The risk of adverse ecological consequences stemming from construction and operation of a sea-level isthmanian canal appears to be acceptable. Taxonomic studies indicate that Atlantic and Pacific [marine] species are closely related, even the few are identical.

"This similarity results from the linking of the Atlantic and Pacific Oceans until recent geologic time, perhaps three million years ago."

What makes this issue important is that United States negotiators are attempting to reach an agreement with Panama to build a new canal. This country is willing to give up portions of the American held Panama Canal zone in return for the right to build another canal thru the Republic of Panama. The United States also is asking continued authority to operate and defend the present lock-type canal.



When the present Panama Canal was built, there was no ecological issue. But the proposed new canal is drawing opposition over two marine species.

The House subcommittee on the Panama Canal, headed by Rep. John M. Murphy (D., N. Y.), has been told that the present canal is adequate for shipping purposes of the United States and other countries for many years to come.

The real advantage of a new canal, the Defense Department contends, would be to allow bigger ships and aircraft carriers to pass thru the isthmus in time of war. Also, a sea-level canal is said to be easier to defend than a lock-type waterway.

David H. Ward, undersecretary of the Army, told Murphy's subcommittee that the Defense Department has no

timetable for completion of a new canal. What is important at the moment, he said, is that the United States obtain from Panama an option to build the new canal.

But some Washington observers interpret such statements to mean the United States will proceed to build the canal as soon as it receives permission. The reasoning is that if a new canal is vital to national defense, then why not build it as quickly as possible?

While opposition to the canal is expected from those usually opposed to the military, so far the opposition has been primarily from the ecology-minded.

According to Dunson, the poisonous yellow-bellied sea snake would be swept by tides thru a sea-level canal from the Pacific to the Atlantic. Locks in the present canal and the low salinity of Gatun Lake in the canal, as well as other barriers, have prevented the sea snake from inhabiting the Atlantic.

If the snake were to pass thru a new canal, Dunson maintained, "it could colonize an area of the Atlantic extending from the North Carolina-Virginia line to southern Brazil."

The effect the sea snake would have on the balance of nature in the Atlantic is questionable, Dunson says, adding:

"It is more likely that such an ecolog-

ical catastrophe due to the proposed canal will come from an unexpected source. Too little is known about parasites and diseases of the organisms of the Atlantic and the Pacific to predict the effects of mixing."

The Tourist Trade?

More important, Dunson said is what the sea snake would do to tourist trade in the Atlantic. The venom of the sea snake is highly toxic and can be lethal, altho, the snakes are only a minor menace if left alone and will inject venom with their bites only 25 per cent of the time.

"Psychologically, the menace is much greater since people have an unreasoned fear of snakes," he said. "The Caribbean area would stand to lose the most from the psychological effect of potentially-lethal sea snakes on the tourist trade."

Another fear of ecologists is that a new canal would invite migration into the Caribbean and the Atlantic of the crown-of-thorns starfish. This starfish is present in the Pacific, multiplies very rapidly, and can play a vital role in the construction and maintenance of coral reefs.

Between 1967 and 1969, the crown-of-thorns starfish killed much of the living coral along Guam's coastline. The governments of the United States, Australia, Guam, and other countries have spent millions of dollars to control this starfish.

Jon N. Weber, another biologist at Pennsylvania State University, told Congress that a similar problem might develop in the Caribbean if the new canal were built.

He said:

"If acanthaster [the biological name of the starfish] were introduced in the Caribbean and permitted to multiply to

the infestation levels observed on Guam and parts of the great barrier reef, the destruction of corals in the Caribbean could be severe and this might have very serious consequences. On the other hand, it is quite possible that high concentration of this starfish would not develop in the Caribbean.

"In my opinion, the introduction of acanthaster to the Caribbean is unlikely to have any serious, long-term effects on coral reefs in the Caribbean-Atlantic region. It is not inconceivable that such reefs might even benefit from the presence of the sea star... [but] the knowledge we have today is insufficient to allow a reliable prediction of the consequences of introducing acanthaster to areas where it does not now occur."

Commission Is Doubtful

The Presidential Interoceanic Commission found that the sea snake and the crown-of-thorns starfish would pass thru a new canal only "under the most unusual circumstances." It noted that some marine life has been passing thru the present canal for 50 years "with no harmful effects identified in either ocean."

The National Academy of Sciences also has looked into the ecological aspects of a new canal. It has suggested that marine migration thru a sea-level canal could be controlled by tidal gates or creation of temperature or salinity barriers in the waterway.

A 1970 estimate placed the cost of a sea-level Panama Canal at \$2.8 billion—funds which would have to be appropriated by Congress.

With many members of Congress now oriented toward ecology, it is questionable whether such a huge sum of money would be appropriated readily for a canal project carrying so many environmental question marks.

By IRVING MICHELSON

LAST DECEMBER, the President of the United States received a report recommending that we build a sea-level canal in Panama, just to the west of the present Panama Canal Zone.

The report was five years in the making and cost about \$21 million. It was written by a special Atlantic-Pacific Inter-oceanic Canal Study Commission, authorized by Congress in 1964. The commission was headed by former treasury secretary Robert B. Anderson who, in another capacity, had in the mid-1960's negotiated three proposed treaties with Panama. They were shelved here and finally disowned by Panama, too, after they aroused potent opposition in both countries. (In order to build the sea-level canal we would need to adopt similar treaties first. Our present arrangement with Panama does not cover a new canal outside the Zone. The objections to the proposed treaties *here* were that they gave Panama too much, and the objections in Panama were that they didn't give her enough.)

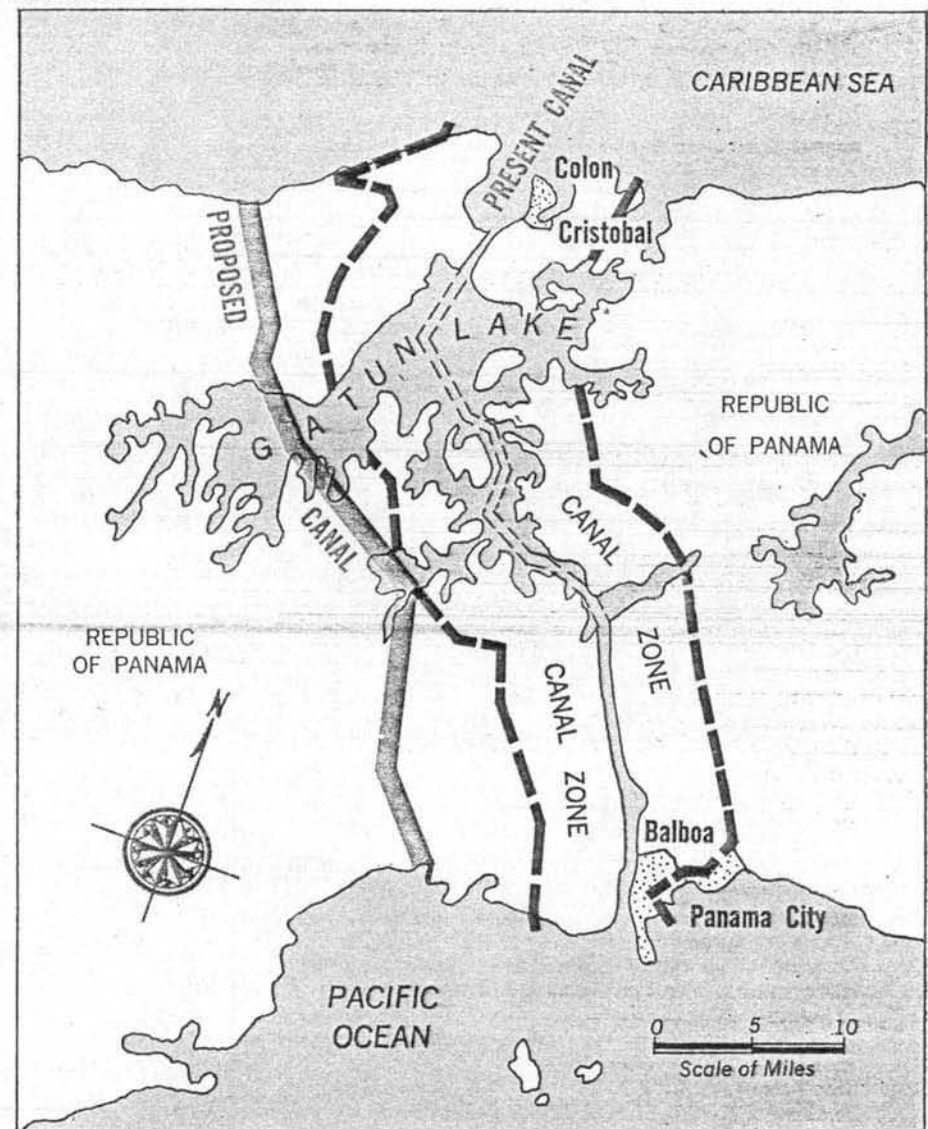
The basic reason for any canal change is to carry anticipated future traffic, heavier than the present canal can accommodate.

So many objections have been raised to the sea-level canal proposal that there's now widespread opinion that it is "impossible" in the sense that it will never happen.

The objections are of all sorts.

Some biologists say that it may cause ecological mischief of unforeseen scope by permitting a flow of plant and animal life between the two oceans that are

DINO LOWENSTEIN



Sea-level route recommended by Commission, which considered about 30 sites.



The Anderson Commission's report.

The Dilemmas of

An official report has been given to the President

presently separated by the perimeter of South America.

There are objections to the proposed \$2.88 billion estimated cost. Some claim that that's too much anyway. Others predict that in the end it will cost far more. One expert on the subject told me that in his opinion a sea-level canal wouldn't earn enough to pay the interest on its huge probable cost under any realistic

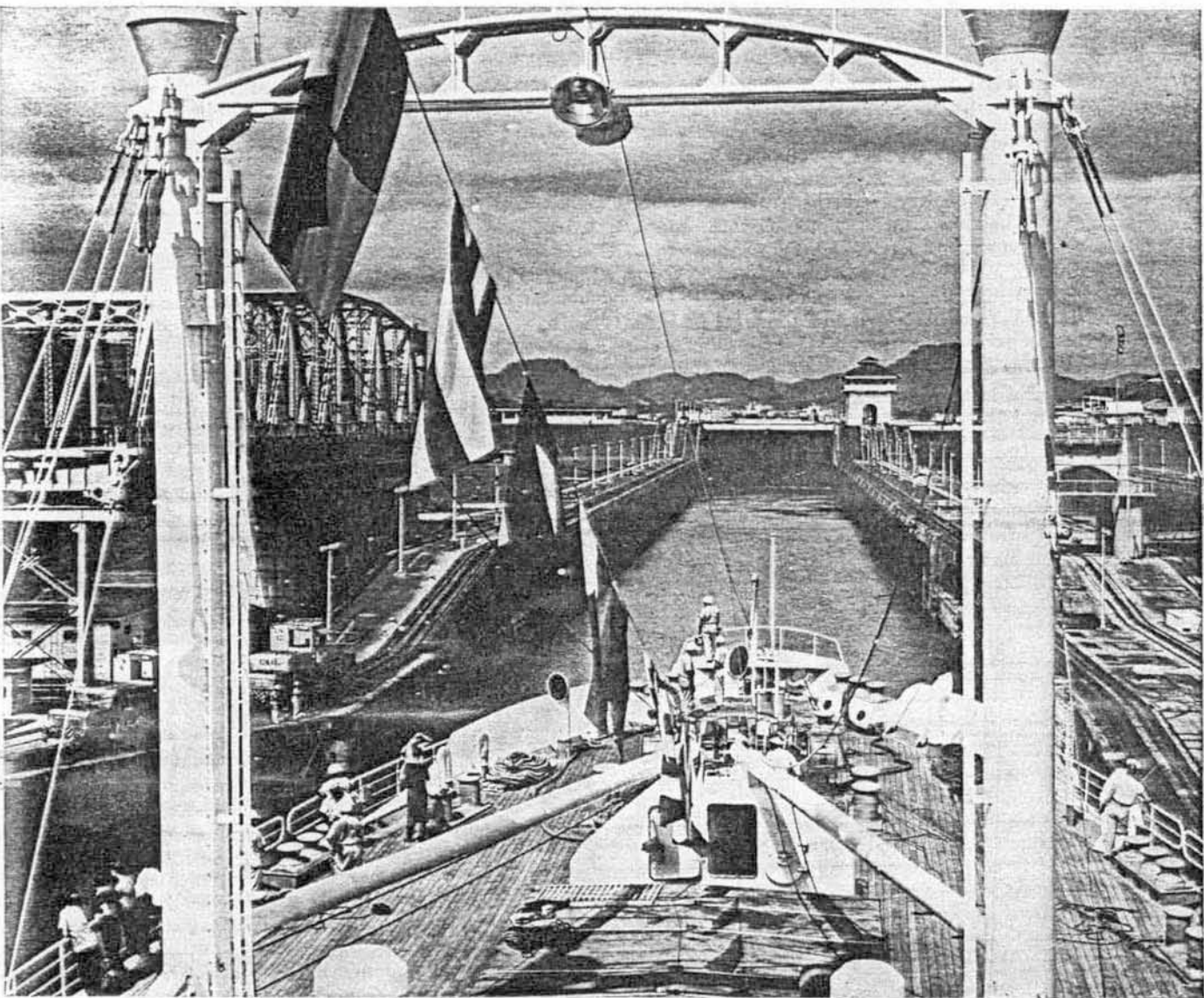
cost-accounting system. When Congress looks this in the eye, he said, it will back off from a sea-level canal.

The present canal, which cost \$375 million to build, hasn't paid its own way. Even the continuing costs have been "balanced" by writing off part of them as "foreign relations" and "defense" expenditures. U.S. taxpayers balanced the books while Panama continuously de-

manded more canal income for herself.

Foes of the sea-level canal in Congress have their own plans for modifications of the existing canal, at far less cost and with far fewer political complications.

There are those who take a dim view of coping with the tides in a sea-level canal. The Atlantic tides swing about two feet from high tide to low tide. The



Ship in transit through the present canal. Time of passage from one end to the other is about eight hours.

a Sea-Level Panama Canal

recommending a sea-level canal across Panama, starting in 1985, or sooner.

Pacific tides swing about 20 feet, since the bay leading into the Pacific end forms a sort of tidal bore. The Commission report proposes an elaborate system of tidal gates (which actually would make the sea-level canal a sort of lock canal, anyway) and proposes to form up ships in convoy to send them through from one tidal gate to the next. This necessity destroys, at least, the popular

concept of a sea-level canal as a free-wheeling open waterway between the oceans. Tidal currents absolutely prohibit that. There is no experience with such tidal locks. Franklin Roosevelt tried to harness the North Atlantic tides at Passamaquoddy Bay for power. We gave that up after sinking a considerable investment in it. Panama and Passamaquoddy are two different things, but

there was the same advance assurance that Passamaquoddy was feasible.

Plainly, there are dilemmas standing in the way of realizing a sea-level canal.

Since the submission of the Anderson Commission report last December, experts and non-experts in all categories have been taking pot shots at it.

Aside from a handful of longtime enthusiasts, it almost seems that nobody

CONTINUED The Dilemmas of a Sea-Level Panama Canal

has a good word for it, or even the mild-praise for the efforts of the distinguished five-man body of Presidential appointees who labored five years in its preparation and called in all sorts of experts to help them.

Oddly, the key question it dealt with was already settled for the Commission when it got its assignment.

Its job was to propose a sea-level canal. Congress told it to "determine the feasibility of, and the most suitable site for, the construction of a sea-level canal. . . ."

Since a sea-level canal is "feasible"—in the sense that it *can* be built—the Commission hardly had the authority to recommend instead that the present lock canal be modified to meet future traffic needs. Having been told to select the "most suitable site," the Anderson Commission was virtually committed by Congress to make its best proposal for a sea-level canal, and not spend its funds to determine if we could do better with no sea-level canal at all. President Lyndon B. Johnson removed any doubt about that.

Why and how the emphasis was all placed on a sea-level canal before the subject was studied by the Commission is not at all clear. When President Johnson appointed the Commission in 1965, he said, "It is time to plan in earnest for a sea-level canal. Such a canal will be more modern, more economical, and will be far easier to defend than the existing canal. It will be free of complex, costly, vulnerable locks and seaways. . . ."

These are basic conclusions needed to decide on a sea-level canal, but the then President gave the Commission the conclusions before he put it to work.

The long, discouraging history of the idea of a sea-level canal makes it quite remarkable that the sea-level notion was virtually accepted at the highest levels before the prospect was studied. The Anderson Commission did what it was told to do, and we must look elsewhere to discover why it was told to look only at the question of a sea-level canal.

Back when the present canal was being built, a distinguished board of engineers then recommended a sea-level channel. President Theodore Roosevelt,

on the advice of the one engineer who was in charge, got Congress to override them. By the time the canal was built, it was said that the smartest thing Teddy Roosevelt ever did was to ignore the board of engineers' advice and listen to his own engineer.

The lock canal turned out to be vastly more difficult to build than anyone had dreamed, even though the creation of Gatun Lake made it unnecessary to dig at all over most of the length of the canal. The chief excavation was through Culebra Mountain, which serves as the Continental Divide, Pacificward from Gatun Lake.

Mountainsides slid into Culebra Cut like glaciers. They didn't just fall. They oozed sideways. Twice as much earth and rock had to be removed from the Continental Divide as was originally estimated. Though that cut didn't go anywhere near as deep as a sea-level cut would have gone, even the bottom heaved up due to pressure from the sides when the weight above it was relieved. Before the slides were stopped, water was hosed on the far sides of adjoining hills to wash them down before they, too, could slide into the cut. In the years that followed, there were more slides that had to be dug away.

The French before us, back in the 1880's, had started to dig a sea-level canal. When they came face to face with the prospect of the mountains that would have to be eradicated they gave it up, and bankrupted themselves just trying to build the lock canal that we finally took over and finished. When the canal was almost finished, Frederick J. Haskin reviewed it in a 1914 book. He wrote a whole chapter entitled "Sea-level Canal Impossible."

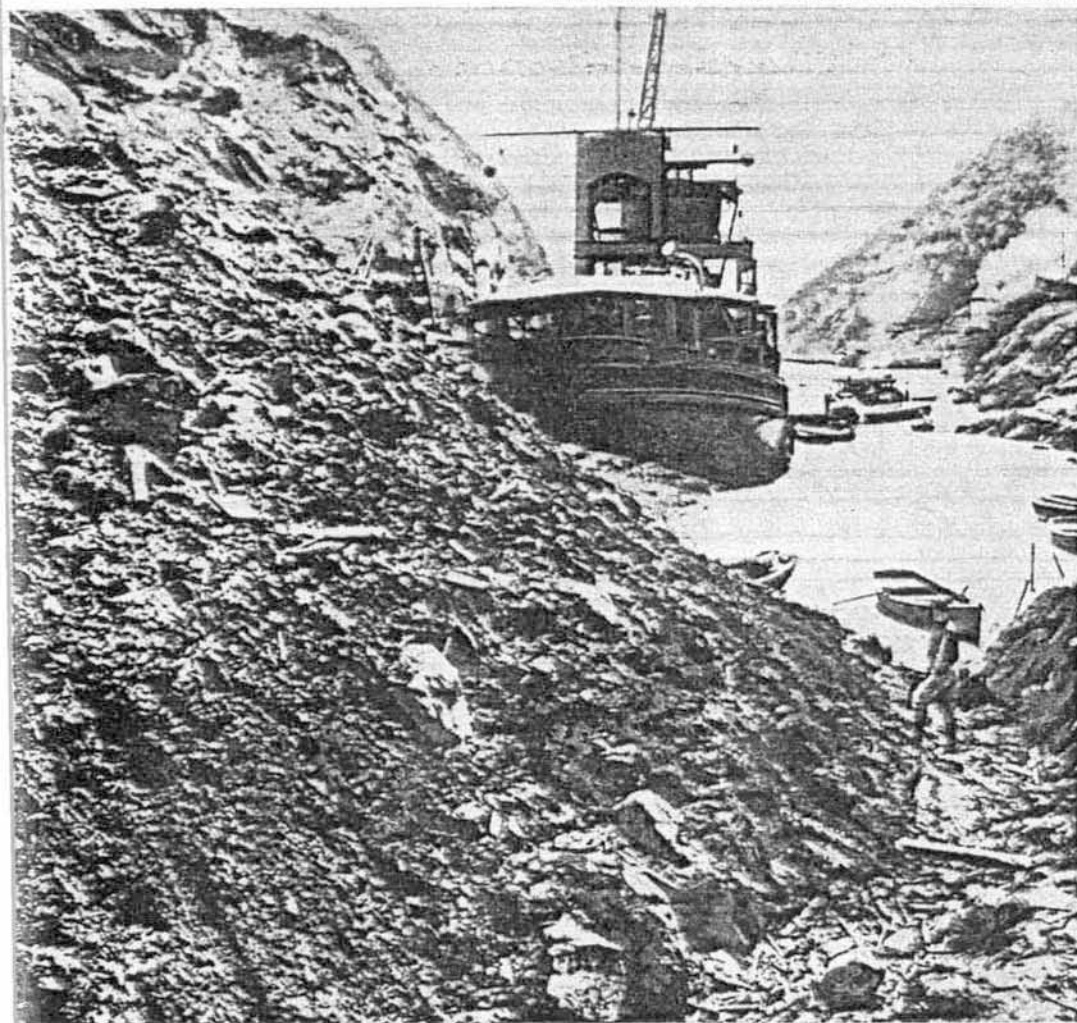
Haskin noted that "the advocates of a sea-level canal declared that a [sea-level] channel could be dug through Culebra Mountain with the excavation of 110,000,000 cubic yards. As a matter of fact, Culebra Cut [now called Gaillard Cut], with its bottom . . . above sea level, required the excavation of almost that same amount."

If Teddy Roosevelt had gone along with the sea-level idea, said Haskin, "it would have involved this Government in difficulties so great that even with all the wealth and determination of America, failure would have ensued."

Of course we can move earth more expertly today, and we casually propose to spend billions where we spent millions then, if only out of the habit of spending billions. Yet with this history, it is rather astounding that the modern political decision to try to go sea-level preceded the Commission study and controlled its shape.

In essence, then, the criticism now

PHOTO AND ILLUSTRATIONS—INTEROCEANIC CANAL STUDIES 1970



Earth slide blocked the present canal after it was completed.



Excavation for new locks (upper left) adjoining Miraflores (center) started in 1939. We spent \$75 million on it, then stopped.

heard of the Anderson Commission report is to a considerable degree criticism of the premises that were handed to it.

The Anderson Commission had a large number of sites for a sea-level canal to study, as well as the question of whether they could be excavated in whole or in part by nuclear blasting. Nuclear blasting, it correctly concluded, is out of the question at this stage of history. However, it evaluated the key sites in terms of both nuclear and conventional excavation.

The sites ranged from Nicaragua through Panama to Colombia. From 1947 to 1962, the Army and the Panama Canal administration had identified 30 possible sea-level routes. The Anderson Commission gave nine of these fairly serious consideration, and boiled them down to four for close study. It reduced these to two as the only ones feasible without nuclear excavation, and made its choice finally of what is called Route 10 (not a highway, but a potential canal route), closely paralleling the present canal but chiefly just outside the Canal Zone.

I have heard no serious criticism of the choice of Route 10 if we are to dig a sea-level canal, except for the very serious objection that if we dig a new canal anywhere in Panama, we will probably have to negotiate a treaty we would one

day regret. Panama wants sovereignty over such a canal, it wants a share of all tolls, and it wants us to give it the canal outright after a while.

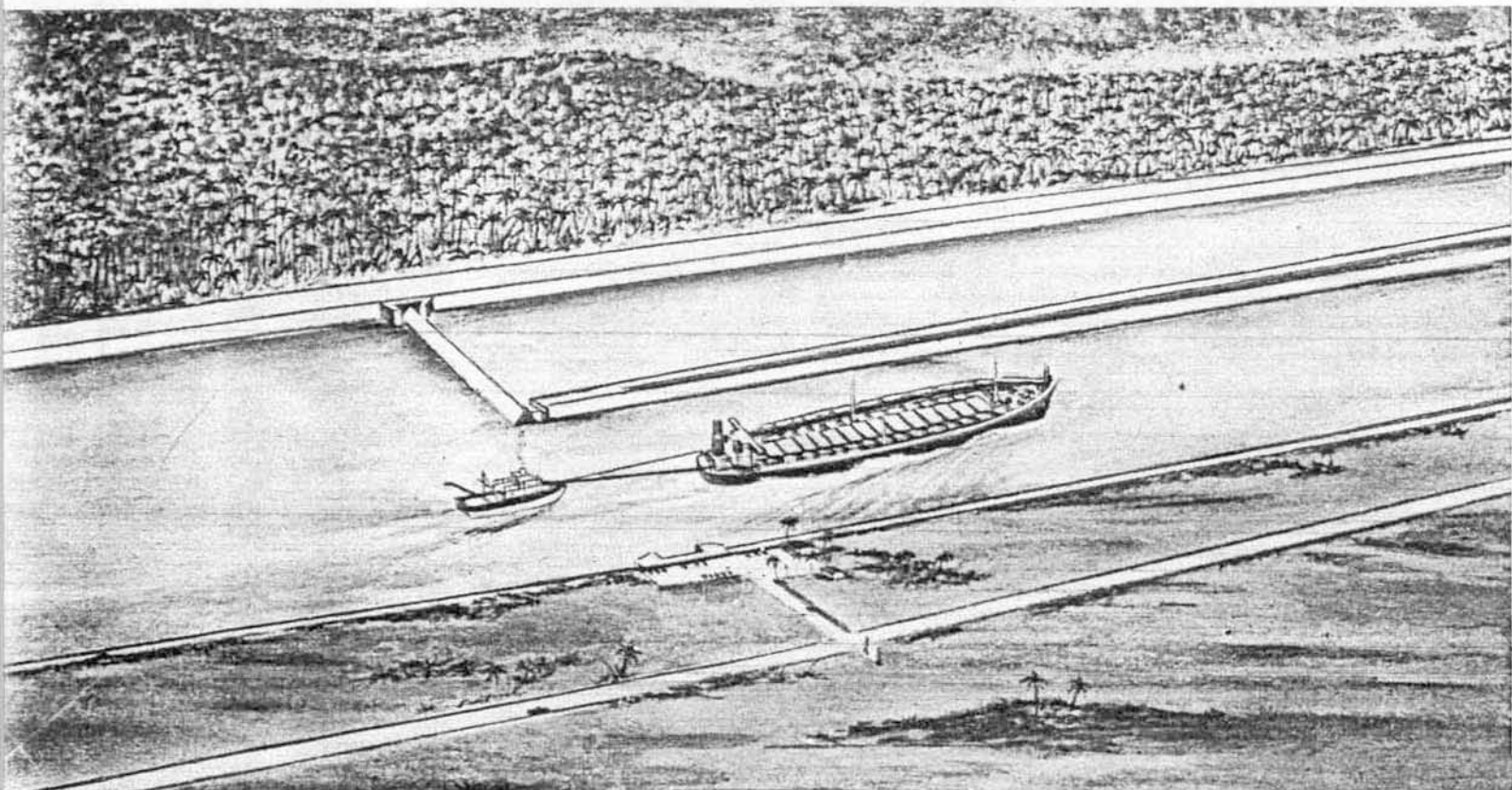
Most of the flak fired since the Commission made its report questions our need for a sea-level canal at all, questions the rosy view President Johnson painted of it, and questions the wisdom of our building any canal in Panama not protected by the most basic rights in our present treaty.

I doubt that the complaints against mixing the sea life of the Atlantic and Pacific off Panama should be taken too seriously in terms of any great damage that might occur. But I don't know that they shouldn't. The chief problem is that what will happen to the sea life is unknown and unpredictable. And it will be unknown and unpredictable until it happens. The effect on sea life might be innocuous, or harmful in some ways, or good in some ways. But the public has a short fuse regarding anything that is even said to have a "potential" chance of "harming the ecology" of any spot on earth. Any proposal for a sea-level canal will run into a hornet's nest in this matter, and the nest is already stirred up. People read eye-catching headlines that ask "What if Snakes and Starfish Change Oceans?" Biologists have mentioned a deadly sea-going member of the cobra

family that abounds on the Pacific side, which might get into the Caribbean through a sea-level canal.

The Anderson Commission hired the Battelle Institute to study this ecological problem. The essence of the Battelle report was that there is nothing to indicate cause for alarm, though not much could be predicted with assurance.

Since the public today is ready to be thoroughly exercised about "potential" harm to the environment (and Congressmen know it), "environmentalist" wrath at mixing the two oceans is a matter that might, all by itself, result in political defeat for a sea-level canal. The American public will most certainly hear ecological claims of great "potential" damage. Expert or inexpert, such claims will be featured for sure as hot television stuff. In fact, the more inexpert they are the wilder and woolier they may be—hence all the better TV "theater." The Battelle Institute report's admission that it isn't sure will be used against it. No matter that the Suez Canal caused no discernible ecological damage when it mixed Arabian Gulf waters with Mediterranean waters. Wrath at "potential" environmental damage connected with the Cross-Florida Barge Canal led President Nixon to stop its construction after millions of dollars had been committed to it. It would certainly be better not to



A sea-level canal faces the problem of tides that vary 20 feet at the Pacific end, and two feet at the Atlantic end. This

drawing, from the Anderson Commission report, shows proposed locks to control tidal currents in a sea-level canal.

spend a cent on a sea-level canal than to sink billions in it and then scrap it later out of public fear that poisonous Pacific snakes might show up on Caribbean beaches. The "environmentalist" critics say the way to avoid such a waste is to kill the sea-level canal *now*.

It is the Route 10 site for which the cost figure is estimated to be \$2.88 billion. This covers construction only, and not any sums that Panama might exact in return for her initial consent, plus whatever more she'd demand in later years.

Panama has consistently demanded more out of the present canal than was provided in the original treaty to build it. In recent years, she has taken to demanding a share of the tolls, though U.S. taxpayers have been footing part of the bill for the present canal due to the insufficiency of the tolls to pay for upkeep and operation and write off the original cost.

In the recent treaty proposals that were shelved, Panama was to get a share of all of the tolls, as well as sovereignty over any new canal from the start, and an outright gift of it 60 years after we sign a treaty. As it would take at least 15 years to build the canal and perhaps more, our ownership would be for 45 years or less. When the proposed treaties were publicized, ex-President of Panama Arnulfo Arias, who was run out in WW2 because of his Hitlerian

leanings, got back in office on a platform which claimed that the treaty drafts weren't generous enough to Panama.

Panamanian political leaders don't dare ever claim they are getting enough from the canal. It is political suicide in Panama to affect satisfaction with arrangements with the United States. The Anderson Commission report is essentially an engineering report study. It makes no evaluation of the political problems except to acknowledge that we must satisfy Panama's "aspirations" by making "suitable" arrangements, and to note that Panama might cause difficulties if we even try to improve the present canal without renegotiating all of our treaty rights.

The favorite pitch of left-wing agitators in Panama is anti-Americanism, and they've proved that they can call down mobs to cow the legislature in Panama City or harass Canal Zone officials whenever it suits them. The last President to try to work in open amity with the United States was "Chichi" Remon, who was assassinated in office even though he got President Eisenhower to sign away some of our 1903 treaty rights.

The estimated cost of the new canal necessarily omits any specifics of what "suitable arrangements" with Panama might be, since nobody knows. Meanwhile, there is no certainty at all that the \$2.88 billion estimate of construction costs will sit still. The public is ac-

customed to paying far more than original estimates for any public project, and the history of the Panama Canal doesn't suggest anything different if we dig a new one.

In 1905, the estimated excavation for the present canal was put at 95 million cubic yards more than the French had already removed. When the canal was ready for dependable service in 1917 nothing less than 325 million yards had been removed by us. Subsequent slides requiring further widening over the years have now brought that to 550 million cubic yards actually excavated. The Culebra Cut, alone, was estimated to need some 53 million yards of earth removed. By the time the canal was opened, the figure stood at more than 102 million yards taken out.

The Anderson Commission report estimates that construction should start at least 15 years before it is estimated that the present canal will be totally inadequate for the estimated growth of traffic. At various points in the report it is assumed that the time to start digging will come between 1975 and 1985. The rationale for creating a new canal is based on the assumption that by the year 2000, if not sooner, the old canal will be inadequate as it stands. The Commission was well aware that the dollar might be worth less and that costs might be considerably higher by 1985 than

(Continued on page 44)

THE DILEMMAS OF A SEA-LEVEL PANAMA CANAL

(Continued from page 12)

they are today. It stipulated that its \$2.88 billion cost estimate was in 1970 dollars.

For various technical reasons, the Commission suggested that digging not start until the latest possible date. That's sound advice as far as it goes. The latest possible start could take advantage of things that become known which are now unknown. However, if present cost trends continue, the later the start the more expensive the work.

Thus the \$2.88 billion construction cost estimate could be any figure higher, with almost no ceiling that could be stated with assurance today—\$5 billion, \$8 billion or \$10 billion are possible, depending on when we start, what Panama wants, and how much more difficult the job turns out to be than is now envisioned. It isn't that I pretend to know, it's that nobody knows.

Strong sentiment in both houses of Congress, and especially in the House, favors modification of the present canal.

A large bloc in the House doesn't like the cost of a sea-level canal. It doesn't like the conjectural nature of sea-level engineering proposals. It doesn't like the idea of giving up the treaty rights that we would most certainly have to fore-swear in order to sink our billions into a sea-level canal, nor does it like the future political complications once we sign away fundamental guarantees we now have.

The House has nothing to say about treaties, but in 1967, when the content of the proposed treaties to make a sea-level canal possible became known, 150 members of the House said they'd go to the Senate and testify against ratification. The real meaning of this offer was to warn President and Senate that once the treaties were ratified they'd have a job getting the House to appropriate the money to live up to them. President Johnson was never deaf to such hints. He didn't offer the treaties to the Senate for ratification, and Mr. Nixon inherited the whole package, including the Anderson Commission report.

Identical bills have been introduced by Congressman Daniel Flood (Pa.) and Senator Strom Thurmond (S.C.) to increase the capacity and improve the operations of the existing canal. Even if their costs estimates are off, too, they start at \$85 million, not \$2.88 billion. This includes widening the usable lock dimensions to 145 feet, with lock length and depth of 1,200 feet and 45 feet, respectively, as minimum values.

One set of locks would be eliminated, all the Pacific locks would be consolidated, the summit water level of Gatun Lake would be raised, etc.

The stated objective of this far cheaper plan, which could be carried

out under our existing treaty, is to follow official recommendations made back in 1939 and authorized then under the name Third Locks Project, with modifications based on wartime experience. We spent \$75 million on this project, starting in 1939, then stopped work on it.

Ex-Navy Capt. Miles P. DuVal, claiming to speak for navigators, has advocated eliminating three sharp channel bends near the Pacific end. He has won legislative backing for a plan to eliminate the bottleneck created there by faulty layout in the original canal con-



"Finished?"

THE AMERICAN LEGION MAGAZINE

struction. The Terminal Lake-Third Locks plan—as it is now known—is under active consideration at this time. Although the plan is not without its detractors, Congressional sentiment seems presently to favor this solution to our Panama Canal problems more than any other presently in sight.

Modernization of the present Panama Canal is not the only alternative to a sea-level canal that deserves serious attention, either. There are numerous alternatives. One charmingly appealing idea is to build a mini-canal in Nicaragua. It would be a high-level lock canal for use by smaller ships, with locks the same size as in the St. Lawrence Seaway. Most of the engineering studies are already made, and recent experience in the St. Lawrence assures reasonably reliable cost estimates for a Nicaraguan canal that would, to a large extent, simply duplicate the equipment and construction in the Canadian waters.

The reasoning is that, although increased canal capacity is certainly

needed and many ships will require wider locks, it is still true that the majority of transiting ships are of the smaller sizes. Small ships do not need a big canal. Among the biggest users of the canal are U.S. and Canadian coastal shipping and Latin American shipping to or from Ecuador, Peru, Guatemala, Costa Rica, El Salvador, Chile, Cuba, Colombia, Venezuela, Panama, the West Indies, etc. The amount of local traffic is enormous. Three of these countries each have much more tonnage passing through the canal than Britain, though Britain leads all European and Asian nations except Japan. By diverting the smaller ships in U.S. coastal trade to Nicaragua, such runs as New Orleans-San Francisco would be cut by 360 miles.

The entire Nicaraguan mini-canal cost is put at about a half-billion dollars, small enough to be self-liquidating, according to claims.

Its proponent is consulting engineer Richard H. Whitehead, of Laconia, N.H., whose canal savvy bridges the generations. He worked as a testing engineer and lock superintendent in Panama as early as 1914, and in 1965 received an award honoring his contribution to the present Panama Canal. Now an octogenarian, Whitehead was brilliant as a young engineer and went on to great distinction as financier and serious scholar of canal design and use. He was an engineer for the Goethals firm and has served as a technical advisor on military and international commissions down to recent years.

ANOTHER DILEMMA facing any such enormous investment as a sea-level canal is that it could be obsolete before it is completed. Its need is all based on estimates of how canal traffic, and the demand for it, will increase. In the past the traffic through the present canal has risen on a steady curve whose only irregularities showed up in wartime. If the curve continues upward as smoothly as it has in the past, then the present estimates are correct. But there are already changes in shipping that may affect the future of all canals, and more may be in the offing.

Current trends in the design of super-tankers suggest that the expected volume of canal traffic will not materialize as predicted by the year 2000. Enormous operational economies are achieved by the jumbo tankers which are too big to pass through any canal now envisaged—and it does not make sense to enlarge the canals to accommodate them. Even if this were done, it is questionable whether the operators would be willing to pay the tolls these monsters would be charged.

Oil tankers are of course not the only
(Continued on page 46)

THE DILEMMAS OF A SEA-LEVEL PANAMA CANAL

(Continued from page 44)

customers for interoceanic canals, but container and other dry cargo ships appear to follow the same trend toward bigness. Pipelines may furnish alternatives to both ships and canals for interoceanic transport. While it is probably too early to assess all of these possibilities, and 30-year projections are always risky, we can do no better than to face up squarely to the clear implications of the spectacular tanker growth rates of the past decade.

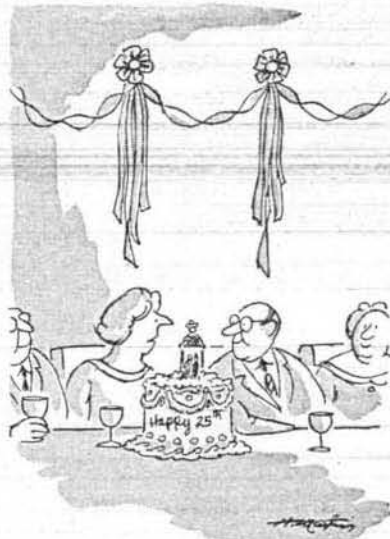
The average length of cargo vessels increased at the rate of about 1% per year for many years up to WW2. At that time the average length and tonnage figures were 630 ft. and 12,000 tons. Tonnage increases much faster than length. By 1959 there was a more than five-fold post-war increase to 69,000 tons. There are now ships afloat in excess of 300,000 tons, more than 1,100 ft. long, with drafts of no less than 62 ft. Already 500,000-ton tankers are under consideration, with drafts of 70 ft.

One modern supertanker carries the same load as six tankers of the wartime T 2 class. Its complement of 30 crewmen compares with the 245 men aboard the smaller ships, and the fuel economy per ton of cargo carried is equally impressive. The tremendous reduction of operational costs realized with these ships spurs the operators and naval architects to speculate where this runaway growth will end. Their present view is that there is still immense scope for further growth. It is probably true that the economic incentives for the ever-larger supertankers are so great that the availability of canals is for them at most a secondary consideration. If the operators recognize in advance that the canal fees are more than they are willing to pay, it can even be said that the newer ships are designed to *avoid* the canals. If the smaller ships cannot stand the competition, they too will be out of the canal picture.

In case we need any reminders that transportation practices are both unpredictable and fast-changing, it is enough to recall the fate of the luxury liners *Queen Elizabeth* and *Queen Mary*, and the impressive fleet of American ships that has almost totally disappeared. Thirty years ago they had a virtual monopoly on transoceanic travel, but now have given way to the much quicker and cheaper airline transportation. Passenger travel on railroads in this country, even more recently, has left the scene for similar reasons. Nobody wants to spend billions for a canal that will fail to attract the business it needs to justify the cost. Economics takes no back seat to technology, nor to politics on the domestic and international fronts.

A serious effort to modernize the United States' antiquated rail freight system is just starting. It emphasizes the faster, cheaper movement of bulk goods by rail. Well before the year 2000, it may increase our transcontinental bulk cargo haulage by land at the canal's expense.

The Anderson Commission expects that we would help pay for building the sea-level canal by raising the tolls now on the present canal. One of its reasons for wanting to delay the start of the new canal as long as possible is to collect a lot of the money for it from higher tolls on the present canal. (As



"Eddie, for the next 25 years could you stop making long stories short?"

an aside, it should be noted that Panamanian agitators have for some years been sloganeering for 50% of all tolls for Panama! While this is only a left-wing slogan drummed into Panamanian students by their faculties, it was first suggested to them by a Panamanian Foreign Minister.)

In any event, the effect of boosting rates on the present canal today to help pay for a sea-level canal tomorrow could be to hasten the obsolescence of the sea-level canal. It could be an extra incentive for shippers to step up their use of supertankers and other alternatives to shipment through the Panama Canal. Canal transit could simply price itself out of the market.

Further inducement for shippers to seek ways to be rid of all canal problems lies in the lesson they learned from the Suez Canal when it reverted to local control. The Suez has been closed so long by Egypt that the world's shippers are getting used to it—and adapting to it. Now American proposals to give Panama immediate sovereignty over the Panama Canal, and future ownership of

it, promises more of the same. Possible Panama Canal closings, due to Latin American rivalries, politics and intrigue, will surely be weighed by all shippers in making their long-range plans, if we ever hand our canal over to local control.

Then there are some far out shipping prospects which may or may not strike a blow at the amount of future traffic that will need canals. The hovercraft is one. Britain is presently running a car-carrying hovercraft across the English Channel on a regular schedule. It skims on jets of air just above the water at high speed, and it could skim just as well above the land. Numerous plans are already afoot for hovercraft of larger size, carrying bigger cargoes, that will skim above the water, and could keep right on skimming over the beach and on inland, at speeds now projected to exceed 80 mph. A hovercraft of such design would need no more than a fairly smooth path of dry earth or paving to come out of the Atlantic, cross the Isthmus and continue on the Pacific. Such a feat is way, way out now in terms of interoceanic travel, but who wants to make bets about the year 2000? The speed of hovercraft is so great, compared to ships, that their higher cost is not necessarily a sure objection to their eventual economic superiority over ships for many uses.

WHEN ALL is said and done, we *can* build a sea-level canal across Panama if we'll pay whatever it might cost in the end, and if we will agree to whatever Panama wants us to agree to. Not all of the objections should be taken too seriously.

But things are certainly not as they seem. Not all of President Johnson's conclusions used as a basis for the Anderson Commission's study hold water.

He said a sea-level canal would be more modern. Modern is a loose word, one that can mean "real good, better than anything previously," or that can only mean a status symbol. We don't need a sea-level canal just to be "modern," and we would deceive ourselves if we thought we could do even that—for the Suez Canal is the oldest interoceanic canal and it is sea-level. No hard meaning of "modern" has been put forth to justify digging a sea-level canal to achieve modernity.

He said that a sea-level canal would be more economical than the present canal. There are no figures to demonstrate any such thing. It would cost vastly more to build and vastly more to placate Panama. What its total cost would be, nobody knows. One of the exciting expectations bearing on economy rested on the hope that we could dig a new canal with nuclear blasting. When the Anderson Commission found that nuclear blasting was out of the question, the one hope of economy went by the boards.

President Johnson said that the sea-level canal would be free of "complex, costly, vulnerable locks and seaways." But when the Anderson Commission faced up to the great tidal differences at opposite ends of the canal it had to come up with its tidal locks. The use of the phrase "tidal checks" in no way alters the fact that these would be water gates, as locks are.

There is argument among engineers about just how much current could be tolerated by ships passing through a narrow waterway, and about just how much current can be controlled by the proposed tidal checks. Ships going one way will be carried along, those going the other way will buck the flow. The Anderson Commission says that even with the best control, the assistance of tugs will be needed. However, it notes, they are already needed in the present canal, so this is no problem. It may not be a problem, but it's a shift of emphasis away from original claims that the sea-level canal would avoid the complexities of the present one.

The check gates are to be moved alternately into position or out of the channel at intervals of 6.2 hours (or some multiple thereof) in rhythm with the tides. Standard procedure would require that all ships be transited in convoys of up to 46 ships, arriving at a check gate just after it opened. The Commission says it could hold the maximum current to 3 knots. Some experts insist a more accurate figure would be 8 knots, a serious navigational hazard. If they are right, the canal would be out of use during periods of the strongest current, and its capacity would be reduced from the expected 38,000 transits per year. The present canal's capacity is 28,800 transits per year, and its renovation under the best of the Terminal Lakes-Third Locks ideas could boost that to over 30,000.

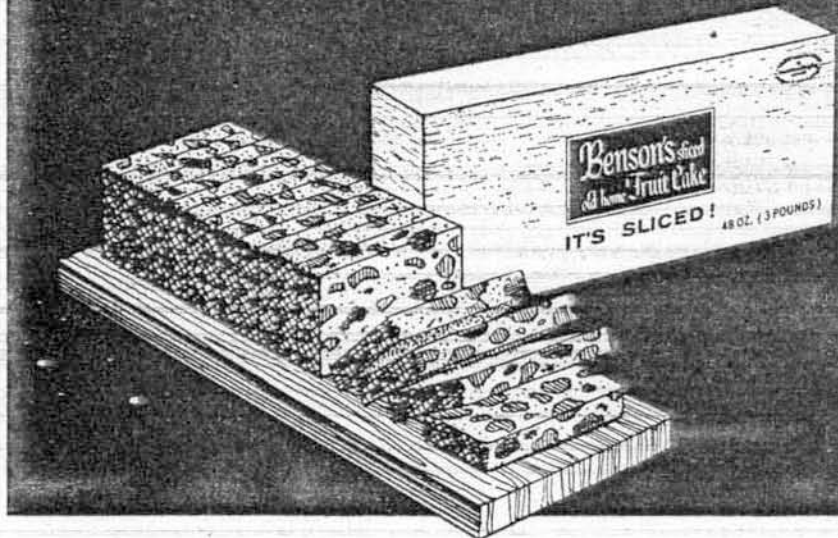
The rosier view of the tidal problem does not measure up to the "freedom" from "complexities" that was envisioned as basic to the original charge given the Commission.

Yet even if the Commission had to knock the props out from under original notions that we could save money by nuclear blasting, or build a sea-level canal without locks of any sort, such a canal is still feasible, as an engineering possibility.

But what sort of a political trap is it? We now know that Panama wants sovereignty over such a canal from the moment it is started. She wants an initial payment of some amount—and \$10 million has been mentioned. She wants a share of all tolls. She wants to "share" in the defense of the canal—that is to have a say of some vague sort in the defense installations that we would provide. And she wants the whole canal given to her in

(Continued on page 50)

This best seller isn't sold in stores...



but your group can make a lot of money selling it!

Premium quality makes Benson's Sliced Old Home Fruit Cake the fund-raising best seller. Last year, more than 9,000 groups like yours raised from \$60 to \$5,000 through Benson's plan, which includes delicious free sample slices that do the selling for you. On each 3-pound cake, your group makes \$1.20 clear profit! Bonus program increases profits even more. See and taste for yourself. Return coupon today for brochure and a generous sample fruit cake—free! No obligation.

**FREE SAMPLE SLICES
DO THE SELLING FOR YOU!**



Benson's Old Home Fruit Cake
245 N. Thomas Street
P.O. Box 1432-K
Athens, Georgia 30601

Please rush program brochure and generous sample fruit cake.
Free! No obligation.

Name _____

Address _____

City _____ State _____

Zip Code _____ Phone _____

Organization _____

(We can honor only U.S. inquiries that list organization names, since we sell only through civic, church, community and school groups.)





shows how your club can raise \$50-\$5000 with Kathryn Beich Candies

Last year, hundreds of dollars in profits were earned by the Scouts, bands, Little Leagues, schools, Churches and clubs who used this plan. People gladly support a fund-raising project when offered the "kettle-fresh" quality of Kathryn Beich Candies.

Mail coupon now.



KATHRYN BEICH
CANDIES
Dept. 102P, Bloomington, Ill. 61701

☐ Yes, our group is interested.

Club's Name _____

Your Name _____

Address _____

City _____

State _____

Phone _____

Zip _____

BINGO

FOR PERMANENT FUND RAISING

Easy way to raise money for your Organization because everyone has fun playing BINGO! Thousands of Organizations are making up to \$500.00 per week using "BINGO KING" supplies and FREE Idea Bulletins. Write for FREE sample card and details on raising money for your Organization.

PLEASE GIVE NAME OF ORGANIZATION.

'BINGO KING'

DEPT. 714 BOX 1178, ENGLEWOOD, COLO. 80110

WHITE'S is #1 CHOICE

with over 25 models of Metal Detectors to select from! Detects GOLD—SILVER—COPPER—NUGGETS—COINS—RINGS—JEWELRY, etc.



GUARANTEED!!
from 99.50 up

FREE LITERATURE
WHITE'S ELECTRONICS, INC.

1011 Pleasant Valley Rd., Rm. 502, Sweet Home, Ore. 97386

MILLIONAIRES

GET UP TO \$151 WIN A RACE DAY \$2 WITH 2 STAKES

CAN'T BUY BETTER!

\$134, \$141, \$151, etc., PROFIT DAILY FOR YOU with 52 stakes at Racetracks ALL OVER with fabulous, scientific, easy to use "PENCLIFF" world-famous race computer—12 expert race experts BRAINS BUILT INTO IT (\$20 stakes—10 times above profits). We give you PROOF—over 4,000 latest "PENCLIFF" Big Win Results. Tear out this ad now, mail it with name, address, zip: R. H. FURL, CO. P.O. Box 5715, CARMEL, CALIF. 93921.

THE DILEMMAS OF A SEA-LEVEL PANAMA CANAL

(Continued from page 49)

the end. Mr. Anderson, operating separately from his Commission as special treaty negotiator, drew up treaties to cover all these points. Panamanian President Robles, who okayed them, was replaced in the next elections by Arias, who complained that they weren't sufficient.

One of the Anderson Commission's chief objections to modernizing the present lock canal is that Panama would raise unshirked hell, even though we could do it under the present treaty. The present treaty gives us sovereignty in the Canal Zone and all the authority we need to modify the lock canal if we don't alter anything outside the Zone.

THE MORE YOU look into it, the more it seems that in both the United States and Panama, the question of what to do with the canal is being treated in terms of finding a justification to give Panama the kind of treaty she wants. Panama quite clearly wants a sea-level canal as a means to force renegotiation of all past treaties. If this is putting the cart before the horse, it is an aspect that seems to dominate thinking on the subject not only in Panama but in successive administrations in the United States (though not in Congress). The Anderson Commission spoke most offhandedly about satisfying Panama's aspirations with a suitable treaty. John Sheffey, executive director for the Anderson Commission, has asserted that a major purpose of building a new canal is the achievement of "excellent treaty relationships" with Panama.

In Panama, today, Gen. Omar Torrijos is currently threatening us by claiming that he has received Japanese bids to build a sea-level canal. He also claims he could get "foreign financing" for the project whenever he wants it. The Soviet Union, perhaps? Today, Torrijos is sort of the Kingmaker and political boss of Panama.

For 15 years the U.S. has leased the Rio Hato airbase as a defense point for the canal. Torrijos has now refused to renew the lease.

What are the chances of "excellent relationships" if we give Panama sovereignty over any new canal we build (or over the present one), as well as a say in its defense and a pledge to give her the canal outright after some years?

Nobody seems to be looking at what could well happen then. We would not give such things to Torrijos, but to the Panamanian government, whoever that might be. For 20 years the communists have demonstrated that they can pull the political strings in Panama whenever they please. In recent years, with talks of a new canal and new treaties going around, they have been very quiet.

Is a communist revolution possible in Panama? Not today. Mr. Castro would find it much to his advantage to let us build a new canal, and sign away our exclusive defense and sovereignty rights over it first. That is the necessary step to establishing any communist regime as the sovereign rulers of either the present canal or a new one. When we ink a treaty with the present government of Panama, we will ink it with all future Panamanian governments, too. And the treaties we have been considering wouldn't give us a leg to stand on to stay in Panama if a communist government took over and ordered us out. It would be sovereign over the canal by our own say-so. Though



TEFF WENANN

"Boy, I wish that big one would quit wagging his tail!"

THE AMERICAN LEGION MAGAZINE

this very real possibility has been pointed out before, all proponents of the sea-level canal are discreetly silent about it. It is not discussed. It needs discussion.

The engineering, economic and ecological dilemmas of a sea-level canal are as nothing compared to the future political mischief that could arise if we sign away our fundamental rights to control it and defend it as a condition to building it. The miserable, recent history of the Suez could be just a warm-up for Panama after 1985.

What a great pity that we cannot seriously try to cut our own interoceanic ditch from Galveston to San Diego, all on home territory. Short of such a pipe-dream, a new, major canal in Nicaragua, even if it cost three times as much, might be more economical in the long run than a new one in Panama. Nicaragua isn't apt to be nearly as wild-eyed about giving nothing and getting all, and in the long run that may be the critical factor in any proposal to upgrade the canal capacity across the Isthmus. We'd have built the original canal in Nicaragua if Panama hadn't at the last minute then offered us the favorable treaty that she now condemns.

THE END.



MINNESOTA HISTORICAL SOCIETY

Copyright in the Walter F. Mondale Papers belongs to the Minnesota Historical Society and its content may not be copied without the copyright holder's express written permission. Users may print, download, link to, or email content, however, for individual use.

To request permission for commercial or educational use, please contact the Minnesota Historical Society.



www.mnhs.org