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A CANAL ACROSS NICARAGUA

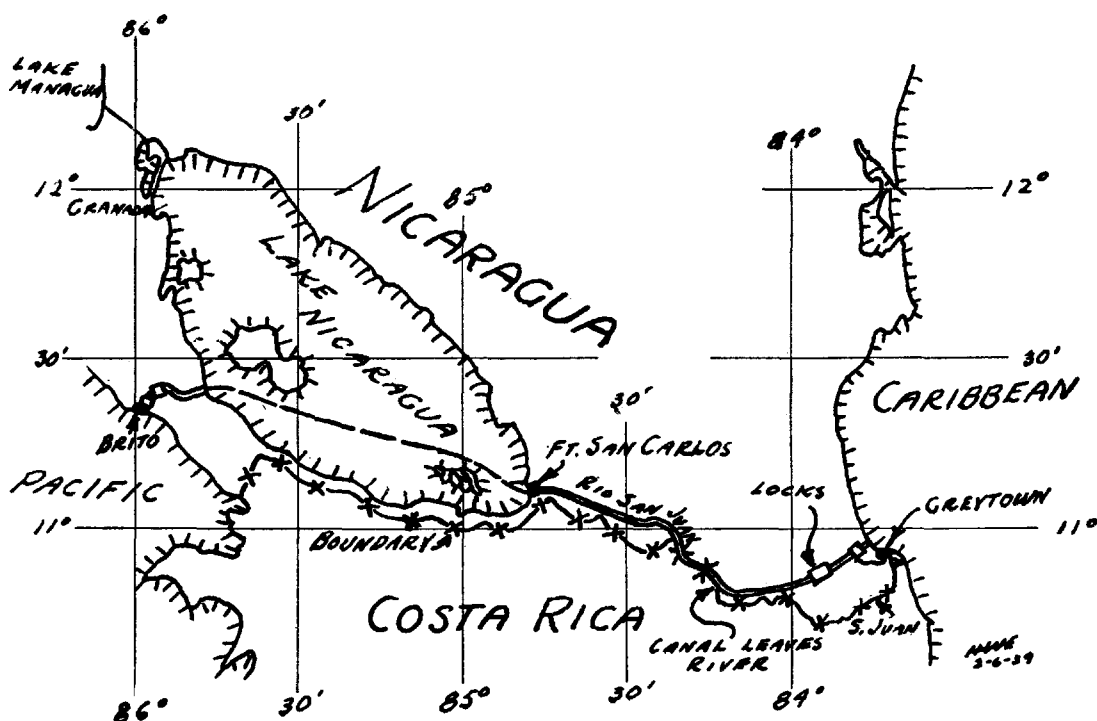
By HELMUTH W. ENGELMAN

IT MAY be remembered that not so long ago there was much discussion of a Nicaraguan Canal. For a time, it dropped from the public mind, but now it is rising again. There is a possibility that something may be done about it in the near future. With everyone worried about national defense and South American trade, and so on, the possibility is becoming a good one.

The purpose of such a canal would be dual. Its commercial possibilities are the more apparent benefit, but its advantage in the matter of national defense should not be overlooked. The Panama Canal is at present able to take care of all trade without trouble. It is predicted that at the present rate of increase in the size of ocean vessels, the present canal will be overworked in about 1970. Granted that this is a long way off. Even so, it must be remembered that if something is done, it will take longer than one year, or two, to accomplish much in the way of a project the size of an interoceanic canal. To add a third set of locks at Panama, which offers one solution, would take ten years, mainly, of course, because regular operation could not be interfered with. A canal across Nicaragua could be finished in an equal length of time. That already brings us to 1960, which is only twenty years from now.

From the commercial standpoint, probably the third set of locks would be the most practical solution. Cost would be \$582,000,000 less. It would increase the annual tonnage of Panama from 41,000,000 to over 54,000,000 tons. This would be sufficient for at least a time, and since the locks would probably be large enough to handle anything afloat, would enable the Panama Canal to handle any ships regardless of size.

It is mainly with regard to defense that the Nicaraguan Canal would be of immediate use. Two canals would obviously be able to pass far more ships than one. This would be in keeping with our policy of one fleet for two oceans. With only those ships necessary to coastal defense in one ocean, a large enough fleet could be assembled in the other to wreak some worthwhile havoc. It would be difficult, but not a practical impossibility, to tie up the Panama Canal by sabotage. To attempt it with two canals simultaneously, as separated as the two would be an incredible job. One waterway might be stopped, but the possibility of one remaining open is better than would be the possibility with one canal. It is in the opening days of a war that the canal service would be vital. It would enable our fleet to choose its theater of operations in either ocean, whichever seemed the most decisive. If, in those first few days, service were delayed, a vital stroke by the



Map showing proposed Nicaraguan Canal

Thatched roofs proved better than tents in the jungle.



enemy might be possible.

The Nicaraguan Canal Zone would not be determined as was the Panama Zone, by setting the boundary a certain distance from the canal. The Nicaraguan Zone will be determined from the standpoint of defense. This is one of the things learned at Panama. Part of the zone would have to be in Costa Rica. (See map).

A little of the history of the situation would not be out of place. There were, at first, four main possible canal routes across Central America, with variations to each. Of these, only two are actually feasible, the one being at Panama, and the other via Lake Nicaragua. It was proposed at one time that at the isthmus of Darien, a canal should be built which called for tunnels in the mountains large enough for ships to go through. Then, also, there was the plan to cross the Mexican Isthmus of Tehuantepec. This called for flat cars large enough for a ship to be loaded upon, which would be pulled across the mountains, the ship being relaunched upon arrival at the opposite ocean. It is almost needless to say that we will probably dig our canals, both now and in the future, and that we will also stay away from tunnels.

The Pacific end of the Nicaraguan Canal would be at Brito. The Pacific and Lake Nicaragua could be very easily connected at that place. Eastward from the lake, the canal would follow the San Juan river part way to the Atlantic. At about halfway, it would take a short cut and emerge at Greytown on the Atlantic coast. This is shown on the map. A dam would keep the canalized part of the San Juan at the proper level.

The lake is at a mean level of about 104 feet. This

would mean locking in three steps. Estimates of construction cost are based on placing a flight of three twin locks at each end of the canal. They would, naturally, be some distance inland. Their location is shown on the map. The advantages of this type of lock are numerous. The initial and maintenance costs are less, and there is less time needed for the ship to pass through, because it has to be made fast only once, instead of three times. This also reduces the danger of locking, since it is at the approach that accidents usually occur, when a ship strikes wingwalls, or an abutment. To put a flight of three locks together requires a good rock foundation, which just happens to be available.

The dimensions of the locks have been determined from commercial rather than naval considerations. The size of commercial vessels is expected to increase far more than that of naval vessels. The locks at Panama are 1,000 ft. long, 110 ft. wide, and 41 ft. deep on the miter sills. The draft of ships is not expected to increase appreciably because of draft limitations in harbors, but it is expected that the canal in the year 2,000 would be called upon to transit a ship 1,125 ft. long and with 120 ft. beam. For this reason the Nicaraguan locks would be 1,200 ft. long, 125 ft. wide, and sill depth of 42.5 ft. More important than this "largest ship" consideration, however, is the controlling capacity of the two canals combined. In the Nicaraguan locks, ships of a combined length of 1,000 ft. could be locked in tandem. This means that during periods of lock overhaul, annual tonnage of 80,000,000 tons could be reached, with normal capacity of 160,000,000 tons. By minor readjustments during the overhaul period, the controlling capacity of the two



The jungle was thick along the San Juan River

canals would be about 200,000,000 tons, which is considered to be enough for the next century or more.

Needless to say, there are numerous features which would differ from those at Panama. But these would not be new risks; experience has dictated the changes. Experience has shown the needs of personnel, considerations of health, etc. It is expected that venereal diseases will cause most of the trouble in Nicaragua, the

mosquito situation being controllable without great difficulty.

The canal would take about ten years to build, and about five years prior to building for treaties and necessary legislation. It would cost about \$722,000,000. Operation and maintenance would be \$10,800,000 yearly, but this would not be an outlay. Most of the traffic now using the Panama Canal would have a shorter route through Nicaragua, and more trade would be able to use both canals, especially our own inter-coastal commerce. It would be hoped that this canal would foster friendlier relations with the rest of the Americas, and thus serve a diplomatic mission as well as a physical one.

The writer wishes to express his personal appreciation to two members of the department of Military Science for their kindness in giving material on the subject. Capt. W. E. Potter was a member of the original expedition which determined the canal route in 1929-31, and was the first engineer of the Hydrographic Survey, which keeps records of lake level, rainfall, etc., for canal purposes. Capt. Lyle E. Seeman served as engineer of the survey during a following year.
