

by the gauge at the fort this morning.

Rev. Asboe, of the Moravian Church Frederiksted, will speak in the Lutheran Church of this town this evening. All are cordially invited.

Another mail for St. Thomas will be closed here at 4 p. m. today.

REPORT AND ESTIMATE ON IRRIGATION POSSIBILITIES ON ISLAND OF ST. CROIX, VIRGIN ISLANDS, U. S. A.

BY C. C. FISHER, Engineer,
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(Continued from yesterday's Avis.)

13. The evaporation from an exposed standard land pan on the Island is 78 inches per annum. The evaporation from a reservoir is estimated as 75% of this, or 58 inches. This is not excessive.

14. Reservoir seepage losses are estimated at 36 inches in depth per annum.

15. Four possible projects were found on the Island that were sufficient in magnitude to justify consideration; namely, the Jolly Hill, River, Manning Bay, and Salt River, projects.

16. The Jolly Hill project will reclaim 1250 acres by the construction of a 2,000 acre foot reservoir. The project is estimated to cost \$406.00 per acre. This is a little below the estimated value of irrigation, and it therefore appears financially feasible.

17. The River project will reclaim 1250 acres by the construction of a 2200 acre foot reservoir. This project is estimated to cost \$295.00 per acre, which is well within the feasible limit and it therefore appears feasible.

18. The Manning Bay is an alternate project to the River. Its engineering feasibility is questioned on account of uncertain dam foundation conditions, and the preference to the River project is therefore advised. No estimate has been prepared on the Manning Bay project.

19. The Salt River project will reclaim 650 acres by the construction of a 2,000 acre foot reservoir. It is a pumping scheme. Its estimated cost is \$435.00 per acre, which is a little above the estimated value of irrigation. On account of its high cost, and also because it is a pumping project, it is not advised as feasible. *It is recommended, however, that runoff records be secured from this basin as, in case the estimated runoff is too conservative, the project may be found feasible.*

20. The estimates in this report are of a very preliminary nature owing to the meager data on which they are based and their reliability should be gaged accordingly.

21. In case subsequent runoff records that may be secured on the several pro-

jects appear to justify further action, it is advised that a resident engineer be secured who has had some irrigation experience and that he make detail surveys of reservoirs, dam sites, including foundation testing, canal surveys, etc., and that he prepare detail plans and estimates, and that such data then be submitted to an irrigation engineer of recognized standing, or to the U. S. Bureau of Reclamation, for final consideration.

23. The two apparently feasible projects, namely, the Jolly Hill and the River, will water the lands only of the La Grange and the West India Sugar Companies respectively, and in either case the entire local holdings of the company could be made available as security for the raising of the necessary construction funds. In such case, on condition that satisfactory legal provisions could be made as to priority of lien, no difficulty should be experienced in securing the money.

GEOLOGY AND GROUND WATER SUPPLY.

23. Three geological reports on the Island of St. Croix have been studied for this report, namely, the extended report of John T. Quin of England, entitled "The Making of an Island," dated 1907; the report of Thomas Wayland Vaughn, Geologist and Chief of Section of Coastal Plain Investigations of the U. S. Geological Survey, dated 1919; and the report of James F. Kemp, Professor of Geology at Columbia University, dated March 25, 1923.

24. From these reports it is seen the Island is composed of two distinct geological formations, namely, the older rock, which forms the east portion, and the mountains of the north-west portion of the Island; and the newer formation which overlies the older in the central and southern portions of the Island. The older rock is of volcanic origin but has been subsequently deposited into the sea and formed into sedimentary rocks. Mr. Quin calls the older rocks "blue beach", and he states that below the "rotten rock" near the surface they are hard and crystalline and that in some cases they are so changed by heat that the stratification disappears and that it is then known as igneous rock. Dr. Vaughn states that these older rocks are metamorphosed sediments, consisting of sandstone, shale or mudstone and limestone, and that all of these rocks are dense. Professor Kemp calls the older rocks the "Mount Eagle Series," and he states that they are compacted and hardened to a very dense rock. These sediments after having been deposited in the sea were subjected to an upheaval and a folding pressure that has left them at a steeply tilted angle, ranging from 45° to vertical.

25. The later formation, called the "Kinghill Series" by Professor Kemp, consists of limestone, chalky beds and marle. It is generally soft and contains

sea fossils and corals. It generally lies at a flat angle 10° to 15° from the horizontal, and its greatest depth is estimated at 600 feet. Dr. Vaughn states that the newer rocks are more or less porous and can absorb considerable quantities of water, though Professor Kemp states they are not very permeable to water.

(To be continued.)

TELEGRAMS.

ST. CROIX STATION.

London, June 5th—A new air service to be opened between London and Stockholm during the coming Summer. It is proposed to operate three airships capable of carrying 25 passengers each. The ships will leave both capitals daily.

Paris, June 5th—Switzerland qualified for the finals of the Olympic Soccer Competition today by defeating Sweden by the score of 2 to 1. The game was replete with sensations and the outcome one of the greatest surprises of the tournament.

Stanford-Hill, Eng. June 5th—Miss Molla Mallory was defeated today by Miss Bransfield in the fourth round of the North London tennis championship, 6-3, 3-6, 6-3.

London, June 5th The polling in the Oxford City bye election, held today, resulted as follows: Bourne (Conservative) 10,079, Fry (Liberal) 8, 237, Lindsay (Labour) 2,769.

Washington, June 6th.—A treaty designed to suppress smuggling of liquor and narcotics across the Canadian boundary was signed here today by representatives of the Canadian and United States Governments. Mr. Ernest Lapointe represented Canada. Secretary of State Hughes signed for the United States. The convention is to take effect ten days after the exchange of ratifications and to remain in force for one year, with termination thereafter on thirty days notice. Each Government is to furnish information to officials of the other regarding clearance of vessels, or the transportation of cargoes, shipments, or loads of articles across the international boundary, when the importation of the articles transported by land is subject to the payment of duties. Information also is to be exchanged regarding clearance of vessels to any ports when there is ground to suspect that the owners of the cargo plan to smuggle it into territories of the other Government. Clearance to be denied to ships carrying cargo consisting of commodities, the importation of which is forbidden by either country, whenever it is evident from the tonnage, or other characteristics of the vessel, that the ship would be unable to carry the cargo to the destination proposed in the application for clearance.

Berlin, June 6th—Reichstag today approved, by a vote of 247 to 183, the position of the Government of Chancellor Marx in favour of the Reparations Experts reports.