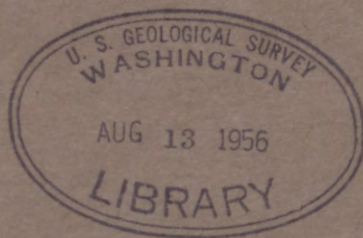


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AUG 16 1956

BENTONITE DEPOSIT - Aguada, Barrio Malpaso, Puerto Rico

(Report for open files, U. S. Geological Survey, Washington, and Puerto Rican Economic Development Administration, Hato Rey)

c 1953

The U. S. Geological Survey in cooperation with the Puerto Rican Economic Development Administration is presently conducting a preliminary investigation of a deposit of bentonite clay on the western end of the island of Puerto Rico, 1 1/2 miles southeast of Aguada, Barrio Malpaso. The existence of this deposit has been known for some time, but it has not been developed or studied previously.

The bentonite in this deposit is a light-greenish to yellowish-white waxey clay, compact in nature, dense, smooth, and hard like beeswax. It is generally the non-swelling variety of bentonite, having the ability to slake or break down to a gel when added to water. Investigations in the Washington laboratory of the Geological Survey show that it is composed primarily of montmorillonite clay, together with a small amount of quartz. Analysis shows that the material contains an abundance of sodium, and that some calcium is present.

As exposed the largest layer measured approximately 30 ft. in thickness at its thickest point. It dips at an angle of about twenty-four degrees and shows a tendency to follow the regional structure of the surrounding volcanic rocks.

The bentonite occurs as several layers in what is known as the Rio Blanco volcanic series, a group of igneous rocks which at this point generally trends in a rough east-west direction. At the vicinity of the deposit these rocks consist mostly of pinkish to lavender colored andesites, largely volcanic flows presumably of upper-Cretaceous age. In color, these rocks range from reddish-brown to pinkish grey. They display flow banding

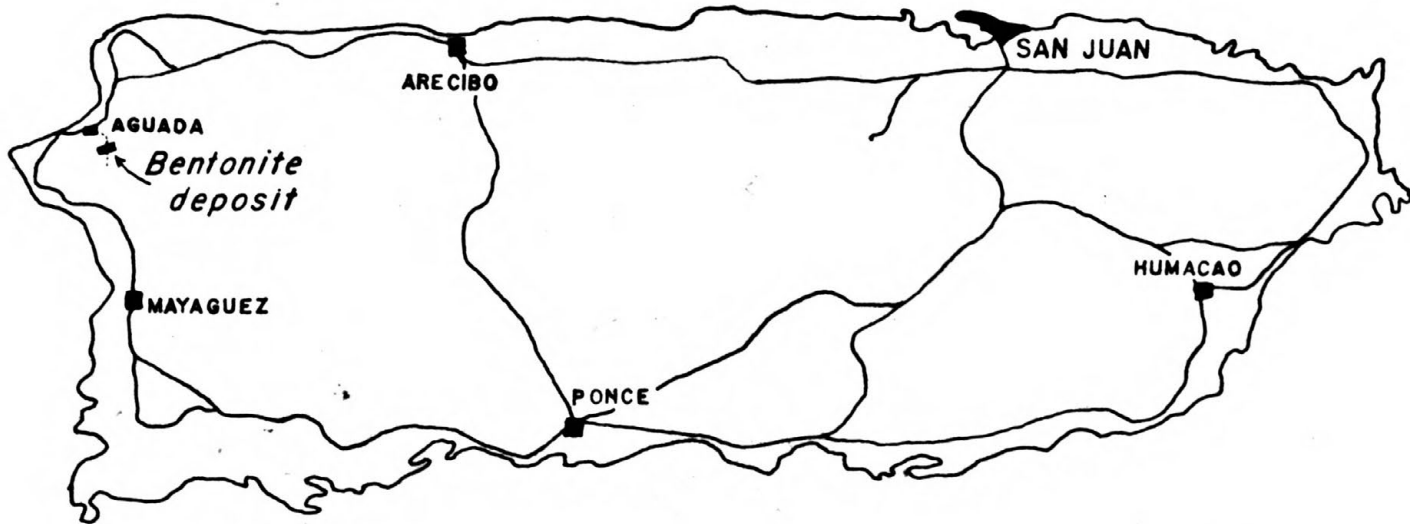
and most of them contain minute phenocrysts of plagioclase feldspar in varying sizes up to a maximum of three millimeters in length. Many of them are amygdaloidal. Some of the amygdules are zeolitic in composition and attain diameters as large as a centimeter. Other portions of the volcanics are distinctly agglomeratic, having incorporated fragments of the surrounding rocks as large as two centimeters into the flow material. A moderate amount of drusy quartz is found throughout the volcanic layers.

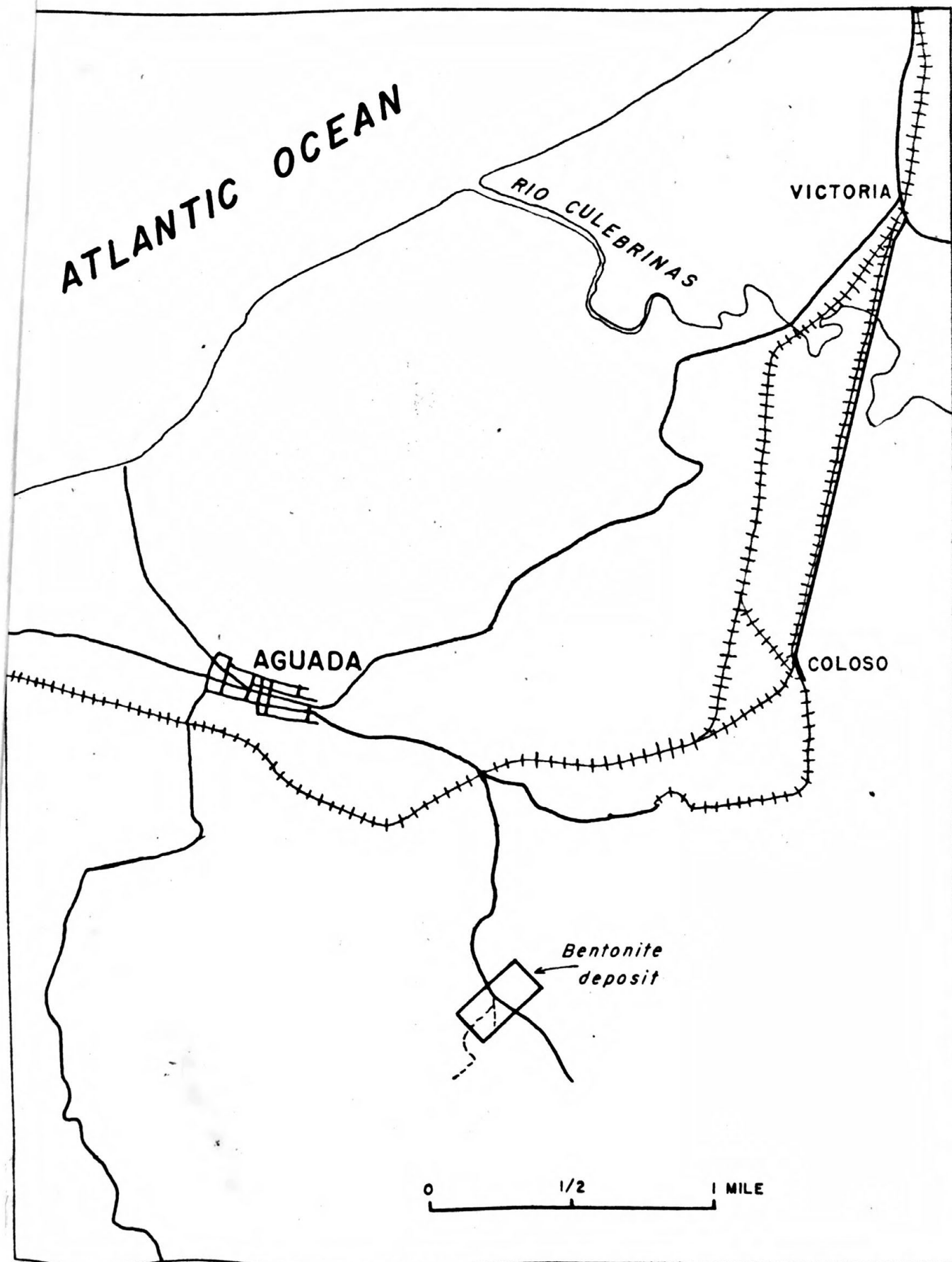
Almost all of the rocks making up the Rio Blanco series in the vicinity of the deposit are altered to clays, presumably largely kaolinitic, most of which have a reddish color. The amount of really fresh rock material is extremely small. Some of the more quartzose portions of the rock have a considerable amount of manganese staining. Also a small amount of green copper staining is in evidence. Close to the bentonite deposit numerous nodules of chert are found in the volcanic layers.

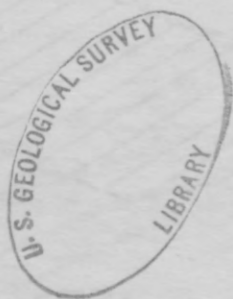
This particular variety of bentonite is the type most suitable as an absorbent clay; for bleaching or clarification of liquid materials. Its chief use is in the field of petroleum refining, where the non-swelling, calcium-rich and iron poor varieties are sought. Bentonite is also used in sugar refining processes, in ceramics and refractories, and in cosmetics and for pharmaceutical purposes.

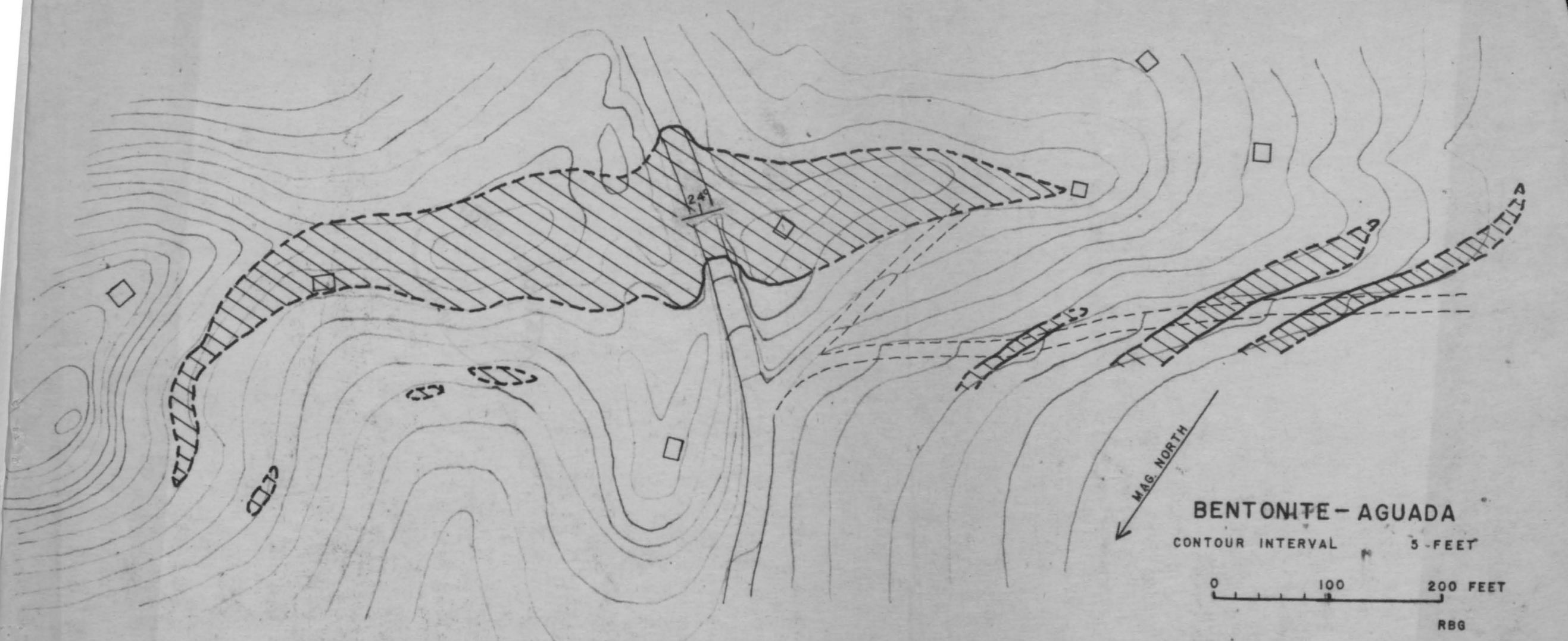
The Aguada deposit is ideally situated. It is bisected by a paved road and it lies only a short distance from the railroad which leads to the nearby major port of Mayaguez.

ATLANTIC OCEAN



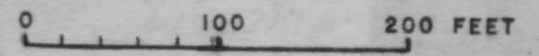




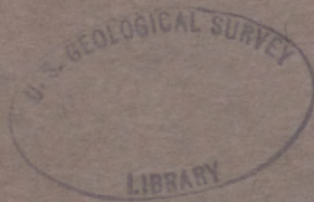


BENTONITE - AGUADA

CONTOUR INTERVAL 5 FEET



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