

CENTRAL PLAIN.

Several large streams water the Central Plain, the principal ones being the Artibonite, which crosses the southeastern end of the plain, and the Guayamouc, which flows southeastward along the length of the plain. The Guaymouc is formed by the junction of the Canot and the Bouyaha, large rivers of the northwestern part of the plain. The Rio Macasia, coming from the Dominican Republic, enters the southeastern part of the plain to join the Artibonite. Besides these streams there are many smaller tributaries that flow down the surrounding mountain sides. Altogether these streams furnish a very large volume of water, some of which might be used in irrigating land in the plain, but most of this water is available only in the southeastern part of the plain, where the land is considerably broken and where only small areas are favorably situated for irrigation. There is much level land in the northwestern part of the plain, but only small streams are available to water it. They should be used, however, so far as possible.

During the time of the French colony the Central Plain was Spanish territory and was used mainly as grazing land. This plain was not irrigated to any great extent then and has not been irrigated much since. The moist and fertile valley bottoms produce good crops without irrigation. The average annual precipitation over the plain is probably about 1,100 millimeters, but the intensity of drought in the dry seasons causes the country to appear more arid than the large amount of precipitation would lead one to expect.

Structurally the plain is a deep southeastward-plunging syncline, the rocks dipping downward from nearly every side toward the center of the plain. (See pp. 488-492 and Pl. XXXVI, p. 488.) The rocks immediately beneath the surface are of Miocene age and consist of conglomerate, sandstone, limestone, and siltstone. At many places, especially in most of the northwestern part of the plain, these rocks are covered with a thin body of alluvium of Pliocene and Quaternary age, but they crop out around the border of the plain and in the interior of the southeastern part. The plain has a generally uniform slope to the southeast. The geology and surface features suggest favorable conditions for obtaining ground water. The coarse porous Miocene beds should absorb water about the perimeter of the plain, and this water, seeping downward along the beds into the center of the plain, would be confined by overlying less porous beds of siltstone, thus giving ideal conditions for artesian water. Strong flowing wells may perhaps be obtained in the southeastern part of the plain, especially from Maïssade to Thomonde and along the southern border of the plain. Wells drilled in the low valleys will yield stronger flows than those drilled on interstream areas. A well drilled to test the full artesian possibilities probably should be carried to a depth of at least 500 meters.

As some of the Miocene beds are of marine origin, they may possibly contain salt water that was imprisoned in the rocks at the time they

were deposited. The occurrence of salt water in a well in an area like the Central Plain, however, which is entirely isolated from the present sea, might be less serious than its occurrence in wells near the sea and directly affected by it. Salt water in wells in the plain could possibly be successfully cased out, and fresh water might be found in beds below it.

Shallow wells dug in the alluvium at some places, particularly in lowlands along the streams, would probably supply small quantities of water. In the northwestern part of the plain, however, the water table no doubt lies rather deep. A dry shaft about 25 meters deep is said to have been dug near the plantation of the United West Indies Corporation, which is about 5 kilometers east of St.-Michel de l'Atalaye.

ARBRE PLAIN.

The Arbre Plain is the small, flat lowland south and west of the Sources Chaudes, or Eaux Boynes, in the center of which stand the chapel and settlement of l'Arbre. This region probably receives an annual rainfall of less than 500 millimeters and is the most arid part of the Republic. All the permanent streams that descend from the mountains disappear at the border of the plain. Along the principal stream channels in the western part of the plain there are two or three playa lakes, which contain water during most if not all of the year. The water of these lakes is rather salty but is used for watering stock and to some extent for domestic supplies. There are other playas on the plain, most of them nearly always dry.

The French colonists apparently did not attempt irrigation here, but a crude system is now in use. During the annual rainy seasons there are usually one or two floods which spread large volumes of water over the plain, especially in the temporary playa lakes. A system of open earth ditches has been dug to distribute part of this flood water over the more fertile and accessible land, especially near the temporary playas, wherever the soil is not too alkaline. Irrigation appears to be practiced by sheet flooding. Cotton is the principal crop, but petit-mil, vegetables, and plantains are raised when water is abundant. Unfortunately the irregularity of seasonal floods causes many disastrous failures of the crops. The system of distribution could probably be improved, but there is no adequate source of water for the irrigation of any large part of the plain.

Over much of the plain there is a thin cover of alluvium, beneath which lies a thick series of Miocene beds, consisting of limestone, sandstone, and marl, which generally has a pronounced dip seaward. No wells are known in the area, and no springs except the Sources Chaudes, which are near the inland border of the plain. These springs, however, appear to afford some slight indication of the presence of water under pressure beneath the plain. (See pp. 558-562.) Fresh water could probably be obtained by deep drilled wells, and in the low parts of the plain weak flows might possibly