

MIOCENE AND MARINE PLIOCENE.

The Miocene deposits of North Carolina have been divided into three formations, the St. Marys, Yorktown, and Duplin, and the marine Pliocene deposits are included under the Waccamaw formation. The geographic distribution of these terranes may be seen by referring to the geologic map (Plate XVII, in pocket). The St. Marys and Yorktown formations are the most important of these four divisions from the standpoint of water supplies. The Duplin and Waccamaw formations are present merely as thin sheets and remnants over older formations, and are of slight importance. It is believed that strata of Pliocene age, possibly synchronous with the Waccamaw formation, are present beneath the surface and stratigraphically above the Yorktown formation of the Miocene in the low eastern counties of the State, but information concerning their presence is very meager. The formations in question are nearly everywhere overlain by thin, surficial Pleistocene deposits.

Both the Miocene and Pliocene strata consist of alternating layers of drab clays, light gray or greenish-gray sands, and beds of shell marl with sand or clay matrices.

On account of the lithologic similarity of the materials of these several formations, and their occurrence in sequence one upon the other in the northeastern part of the State where they are important as water bearers, it will perhaps be less confusing if the whole series be considered as one unit as regards their availability as a source of water supply.

In this northeastern region the beds dip gently to the eastward, the successively younger strata having their upper edges close to the surface successively nearer to the coast. Along the coast the combined thickness of the beds is believed to be 500 to 800 feet. Westward the series as a whole becomes thinner and finally feathers out at the western limits of their overlap upon older formations.

The more porous, sandy layers in this series of deposits carry very abundant supplies of water which may occur at any vertical position between the base and top of the deposits. Failures to obtain supplies have been reported in places. These may be due to the local predominance of impervious clay layers, but are probably more often due to a too rapid sinking of the casing, which prevents recognition of the possible useful horizons.

Owing to the presence of shells in great abundance almost everywhere in the beds the waters obtained in almost all cases contain calcium carbonate in greater or lesser amounts. In many places the content of this mineral matter is not excessive and the waters are of fair