

amounts of phosphate. After long exposure it becomes pinkish or purplish or, in some places, reddish or yellow. At the bottom of the formation are large residual lumps of silicified limestone containing molds of *Cassidulus gouldii*, which shows that they were derived from the Suwannee limestone.

The lower part also locally contains phosphate rock, which commonly occurs as plates or large boulderlike masses. Phosphate has also impregnated or replaced the top of the underlying Ocala limestone. The phosphate deposits are obviously of secondary origin. Originally they occurred as grains disseminated throughout the Hawthorn formation, from which they were dissolved by downward-percolating rain water. When the solution reached the underlying limestone or water saturated with lime, the phosphate was reprecipitated. This process doubtless began as soon as the Hawthorn formation emerged from the sea, at the end of middle Miocene time, and has continued intermittently ever since, though it was interrupted during the Pleistocene epoch by repeated incursions of the sea.

The Alachua is unique among geologic formations in Florida in that most of it was not deposited in water, either salt, or brackish, or fresh. The bulk of the Alachua is merely the collapsed and compacted residue of the Hawthorn formation *in situ* together with accumulations in sinkholes and ponds. These latter accumulations contain the bones of Pliocene animals.

*Thickness*—According to Sellards (1913, pp. 30, 31) the Alachua formation reaches a thickness of 75 to 100 feet in Citrus County, though it is commonly thinner.

*Distribution*—The main area of the Alachua formation extends from the northern part of Gilchrist County into Hernando County. This area is cut into two sections by Withlacoochee River, which cuts through the Alachua deposits into the Ocala limestone. There are outlying patches in the southwestern part of Lafayette County and the western part of Hamilton County as well as smaller patches in Alachua and Marion Counties.

*Stratigraphic relations*—The contact with the Ocala limestone, which underlies the Alachua formation at most places,