EDMUND RUFFIN of Virginia has agricultural fame for his achievements in the second quarter of the nineteenth century in the use of liming materials and his authorship of a 500-page "Essay on Calcareous Manures" and other voluminous writings. Professor Emil Truog, as president of the American Society of Agronomy in 1938, featured the work of Ruffin in his presidential address (3) under the title "Putting Soil Science to Work." With extensive quotations from a biographical sketch of Ruffin by Avery Craven (1) and comments of his own, Professor Truog emphasized the pioneer work of Ruffin in soil chemistry, soil management, and particularly in demonstrating the value of the Coastal Plain shell marls.

The evidence seems to be unmistakable that by the use of these marls and good husbandry, Ruffin was able to double and triple his yields of crops, especially clover. He writes that clover grew so large it scarcely could be cut with his machines. The question is, was it liming materials alone that made Ruffin's results possible, or were there some other nutrients in the marls used that made important contributions to the results achieved? Professor Truog's stress on the liming aspect of the results of Ruffin's practices is justified by the main title and theme of Ruffin's writings—Calcareous Manures. It is worthwhile, however, to examine the facts more closely.

From five years' residence at Richmond, Virginia, and from earlier soil survey field experience in Prince George County, Maryland, the writer became acquainted with the general geological and soil features of the Coastal Plain-Piedmont belt of that region. The soils of the western Coastal Plain belt of Virginia give every evidence of being low in phosphate and relatively low in potash as well as in lime, and thus would not be expected to give such increased yields merely from the use of shell lime alone. On the other hand, underlying those western Coastal Plain soils, from New Jersey to South Carolina, are extensive beds of "greensand" as well as "shell marl." Unevenly distributed in the greensand is glauconite—rich in potash—which contributes to the green color of the greensand. Many of the beds also contain a considerable percentage of calcium phosphate and calcium carbonate derived from the bones, teeth, and shells of marine animals which, with the glauconite, compose a "greensand marl." As the writer read Professor Truog's address the question arose, Could it be possible that greensand was associated with the shell marl used by Ruffin, so that he had a lime, phosphate, and potash fertilizer—an ideal combination for clover—instead of merely a source of liming material?

From a determination of the location of the Coggin’s Point and Marlbourne plantations of Ruffin and from a check with the State