

many of which, under the microscope, present the most beautiful figures. They are so extremely small that Ehrenburg, well known for his labors with the microscope, with the aid of his micrometer has calculated that a cubic inch of tripoli contains many thousands of millions of these diatoms.

The value of the tripoli is in fact owing to the extremely small size of these forms. Besides, each one is so thin and fragile as to be easily broken into fragments, whose sharp edges render them efficient for polishing, whilst each is too small to make a visible scratch on the surface operated on.

I first discovered this tripoli on the Patuxent River, at the mouth of Lyon's Creek, a few miles above Nottingham, which has caused it to be named *Nottingham tripoli*. I traced it to other points on the Patuxent, below Lower Marlboro', and subsequently throughout the greater portion of Calvert and the southern part of Anne Arundel county. It will doubtless be found to extend over most of Charles and portions of Prince George's and St. Mary's counties.

The thickness of this large deposit of tripoli varies from five to thirty feet, as seen at the bluff on the Patuxent, Herring Bay, and from thence to Plum Point, on the Chesapeake.

In geological position it belongs to the Upper Miocene, lying ten to twenty feet above the important shell marl deposit described in my last report. On the Eastern Shore there is generally but little thickness of covering above the marl, so that the tripoli cannot exist there to much extent. I have only noticed it at Wye Mills, where it is thin and much mixed with very fine sand.

The Nottingham tripoli has been carefully examined by my friend, Dr. C. Johnson, distinguished for his microscopic researches. He has determined more than one hundred different species of diatoms in the specimens I furnished him. This formation has much interested the scientific world in Europe as well as in this country. The applications for specimens have almost entirely exhausted those which were obtained whilst I was exploring the formation.

At some of the localities the Nottingham tripoli appears to be made up almost wholly of minute diatoms, so that, from its fineness, it constitutes a material superior to any that has hitherto been sold, for giving a finishing polish to metals, and also cabinet ware, coaches, and other varnished articles.

In experimenting with it, I have found that, by a proper system of mixing it with water and pouring off the lighter floating parts, it may be separated into three portions, of different degrees of fineness.

The first, or finest, is adapted to give the most perfect polish even to silver ware.

The second also produces a fine polish, but less perfect, whilst its effects are more quickly produced.