QUARRIES AND CLAYS.

THE TALLADEGA MARBLE QUARRIES.

From the Talladega ~~[For the Mining Magazine.]~~ Democ. Watch

At the present moment, when property in your county is about to be greatly enhanced by the conveniences consequent upon the proximity of a railroad, and when the utility and furtherance of the project may be dependent upon the existence of those resources, which it is intended to develope, a few remarks upon the marble quarries of Talladega county, can scarcely be unwelcome to those who take an interest in the mineral productions of your State. It is with this impression at least, that I beg to tender the following brief observations, since some time must necessarily elapse before the reports upon the geology of the State can be laid before the public.

Those quarries which were in operation, when I examined them, are Mr. Taylor's, Dr. Gant's, Mr. Nix's, and that of Messrs. Alex. Herd and Brothers. Unfortunately I have not at present my notes on Mr. Taylor's quarry with me, as the description of that, as well as of one of Dr. McKensie, has already been furnished in a previous report to Prof. Tuomey. The following remarks will therefore be confined to those of Mr. Nix and of Messrs. Herd & Bros. Mr. Tuomey having in a published report already described Dr. Gant's.

A few preliminary remarks on the general geology of the portion of the county alluded to, are necessary. The metamorphic rocks (i. e. the slates &c., in Hillibee, Randolph Co., Tallapoosa Co., and Coosa Co.), of Alabama, like all the rocks of the more northern Alleghanies and Blue Ridge, consists of vast parallel folds,—these mountain ranges being what German geologists term *falten-gebirge* (fold mountains,) in contradistinction to those in which an anticlinal axis is observable, and in which the dip, the inclination of the strata, is opposite in the two sides of the ridge, as well as to those in which the strata dip toward all points of the compass from one apex. This fact explains the phenomenon, observed throughout these eastern American mountains, that, with few, merely local exceptions only, the dip of all their constituting rocks is the same in direction, viz: S. E., varying only in the angle of inclination. These immense folds were the result of the combined agency of the gradual cooling of our sphere in ages past, and consequent contraction, and of great lateral pressure. The peculiar position (as will be seen hereafter), and the open works of the marble quarries necessarily afford admirable means for observing facts connected with this interesting peculiarity.

All who have paid any attention to the marble quarries of Talladega county must have been struck with the fact, that they seem to be confined to the immediate proximity of the metamorphic rocks, situated, as it were, in a band of marble, which separates the other limestones (for marble is a true limestone, differing only from the ordinary limestone in being of sufficient hardness to receive polish) from the metamorphic rocks. This may be owing to the metamorphic agencies, which converted the latter rocks to their present shape, having also exerted some influence upon the adjoining limestone.

In all the quarries named, with the exception only of that of Messrs. Herd, the marble immediately underlies the talcose slate, and in the instance, which forms the exception, a narrow stratum of sandstone and above this another of quartz rock are the only intervening beds.

A great variety is perceptible in the Talladega marble, both with regard to its intrinsic merits, and the thickness of its beds, a difference thus adapting the diverse marbles to distinct purposes, and making the one or the other more perfect, according to the uses to which it is applied.

The quarry of J. M. N. B. Nix, Esq. has, of the two of which I have proposed to speak, been in operation the longest. At his quarry a fine section

has been laid bare, showing the postion of the marble and that of the superincumbent talcose slate. The colors of his marble pass from blue to pure white, but the most abundant seems to be that in which the two colors alternate with varying intensity. I am indebted to Mr. Nix for the statistics of his works, with which he has had the kindness to furnish me, and, although they are only approximative, they may prove interesting to many of your readers. These works were commenced in 1850, and the apparent decrease in the number of hands after the first two years is owing to the fact, that during the years 1850 and 1851 his hands were chiefly occupied in stripping the soil and clay from above the marble, and in building. Hence, during those years, as well as the succeeding one, few hands were occupied at his dressing works.

Years.	Tons of Marble Quarried.	No. of hands employed in Quarrying.	No. of hands employed in dressing on the spot, and at Selma and Montgomery.
1850	100	20	12
1851	150	20	12
1852	150	10	12
1853	300	20	21
1854	400	20	21
Total	1100		

At present the same number of hands, as last year, are employed. When, however, the railroad is completed, Mr. Nix informs me, that he proposes to increase his force to one hundred hands, of which one half at least will be negroes, as their labor and behavior is found to be preferable. A sixty-horse engine, besides the water-power, is employed in sawing the marble. This quarry is situated in the southern half of a section 36, township 20, range 4 east, and is nine miles from the proposed hundred-mile station on the railroad. During the several years, in which this marble has been in use, its qualities have been amply tested, and it will, consequently, be unnecessary to dwell further upon its characteristics.

The quarry of Messrs. Herd and Bros. in section 18, township 20, and range 5 east, and five miles from the hundred-mile station, has been but recently properly worked, though opened first in 1850, and should by no means be mistaken for the one so long operated in by Mr. George Herd, deceased, since the latter can in no point of true value compare with it. Its situation—a hill rising to perhaps fifty or sixty feet above the neighboring creek,—as well as the quality of the marble, has admirably adapted it to its present purposes. Not only is the beauty of this marble to be found in the purity of its coloring, but also in its peculiar liveliness. Indeed, I have not observed a single specimen at this locality, which presented that dead, plaster-of-Paris appearance, not unfrequently seen elsewhere. Though white, of varying nuances or shades, is the universal color of the beds hitherto exposed, those bluish cloudings so common in Italian marble, and which are often desired, from the relief they afford to the else universal, dazzling white—are not uncommon. In no instance have I observed the parallel streaks of a darker color, which give to some of the marbles in use the appearance of being weather-stained. This is not surprising, when we consider that these striæ are the result of minute, intercalated beds of talcose slate and that such impurifications are scarcely ever met with in this quarry. The only stratum of the kind observable, where the quarrying is at present carried on, is 8 feet 3 inches from the top of the marble, and none other has been met with beneath, although they have penetrated to a fully equal depth below it. The apparent

difference of a specimen of this marble, held by the side of a piece from Italy, was only to be noticed in the greater compactness or finer grain of the former. There is, however, another great want of similarity between the two. The Italian marble is not stratified, while all Alabama marble is. Owing to this great difference the latter is not adapted to statuary purposes, for of course it works easier on the bed, than on the edge. So great is this inequality in some instances that, as Mr. Nix informs me, a hand who can work ten feet in a day's drilling on the bed, can only accomplish two on the edge. All the latter work not effected by the blasting, is therefore left to the saws. At Messrs. Herd's quarry the difference between the bed and the edge is found to be so slight, that the common workman is scarcely able to detect it, although as a matter of course, the sculptor's chisel would soon make even this trifling difference apparent. It is nevertheless a circumstance, which will enhance the value of this marble for solid work, such as columns, obelisks, &c. The great hardness of this marble is another peculiarity, which it is necessary to mention. That this is the case is seen from the fact that, while other Talladega marbles enable a hand to drill as much as 200 inches in a day with ease, 90 to 100 inches seem to be the maximum at this quarry.

The rather minute description of Messrs. Herd's marble appears desirable, since their quarry has as yet furnished the market with but little of its rock. As the owners, aided by long experience in the business, are energetically prosecuting their operations, and are now about to place an engine of thirty-five horse power on the spot, it is to be hoped that before long my remark will no longer be true. A rough estimate would indicate that about 3000 cubic feet of the rock have, as yet, only been removed from that locality.

The price of the marbleis, I understand, on the spot, universally $2 per cubic foot, when rough; $10 per feet dressed plain; or 75 cents roughly sawed, per square foot of two inch slabs, though when dressed the price for the same is $2. We hope that the proprietors will continue to benefit themselves and their customers by a continuance of the energy they have hitherto exhibited.

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SHELL-MARL IN MISSISSIPPI.

It has already been published in several papers of our State, that I have discovered on my geological tour through the south-eastern counties of the State of Mississippi, a very important and really inexhaustible deposit of Shell-Marl. The deposit is in the southern part of Clark county; I found it first on the plantation of Gen. W. B. Trotter, in a deep gully, with high and perpendicular bluffs, on Section 3, Township 10, Range 7 West, about 20 feet under the surface, cropping out in the gully. This really invaluable deposit of Marl, is evidently a member of the Tertiary (Eocene) Lime Formation which is so well developed in the south-eastern part of our State. This formation is similar to the Cretaceous formation of the Secondary period, of which it is most evidently a continuation. It consists:

1. Of a hard Carbonate of Lime, or white Limestone, in many localities eminently fit for burning Quick-Lime:

2. Of a soft Aluminous Carbonate of Lime, an inferior kind of Marl, and

3. Of a fine Green-Sand, full of tertiary shells and of a superior quality, generally better than our Green-Sands of the upper and lower Cretaceous formation of the Secondary period, and eminently fit for a Marl of Prairie and heavy clay soils.

The deposit of fine Marl, above mentioned, takes the place of the Green Sand of the tertiary Lime formation; it consists to a large extent of the detritus of shells and their former inmates, the decayed Mollusks. This bed of Green-Sand is not confined to Gen. Trotter's plantation, I found it also outcropping along the bluff of the Chickasawhay river. This bluff is in that locality (Sec. 3, Township 10, Range 7, West) very nearly 100 feet high; the