

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
DIVISION OF HIGHWAYS

G. F. 158 Rev.

MEMORANDUM

DATE August 10, 1960

TO J. D. Lindsay	SUBJECT Columbia Quarry Co. Ullin, Illinois
FROM S. M. Peters	

The pictures in this group were taken at Columbia Quarry Company's Quarry at Ullin, Illinois on Wednesday, April 27, 1960. They show the quarry as it was when Frank Brock, District Engineer of Materials of District 9 and I, in company with Richard Kiel of this laboratory, and Jack Gore of the Columbia Quarry Company, were there on that date.

The quarry is located in Pulaski County, $1\frac{1}{2}$ miles north of the village of Ullin. It is on the Dale farm in the bluff $\frac{1}{2}$ to $3/4$ mile west of U.S. 51 and the I.C.R.R., in Sec. 14, T14S, R1W. See the Pulaski County map which is included in this file.

According to Mr. J. E. Lamar of the Illinois Geological Survey in his bulletin -- "Limestone Resources of Extreme Southern Illinois" -- dated 1959, the rock in this bluff is the Warsaw-Salem Formation of Mississippian age. This formation underlies the St. Louis Limestone and is just above the Keokuk-Burlington. About 100 feet of the Warsaw-Salem ledges are exposed here.

Originally this was an old quarry that was worked in a small way for many years. It was later worked by the Illinois Central Railroad for railroad ballast. It was taken over by Nally, Ballard & Cato sometime prior to 1947.

In November 1947, Nally, Ballard and Cato drilled a $1\frac{1}{2}$ -inch core to a depth of 80 feet in this deposit. They submitted 20 feet of this core to the laboratory through Mr. L. Walker, who was District Engineer of Materials of District 9 at that time. See Lab. No. 47-5498. The 20 feet represented $2\frac{1}{2}$ feet from each 10 feet of the 80-foot core.

Quoting Mr. Walker's letter dated November 12, 1947, regarding this core -- "The 80' drillings were taken from the old quarry floor. In the old workings a few chert bands show, with some nodules of chert also appearing. At present there is about a 60' face containing these chert bands which approximate about 1% of the face. The core drill operated at the floor level, and the results of the core indicate only about one 1-inch chert band in 80'."

"The firm of Nally, Ballard, and Cato, Inc., intend to operate below the floor level and eventually go into a mining operation. They have requested tests for quality based on the results of the core submitted. They have requested a "rush" on these tests since they wish to start operations as soon as possible."

From the information given in this letter we assume that the core was drilled below the floor of the old north pit -- below the 60-foot level. This would indicate that it was taken from the ledges at 60- to 140-foot depth in the deposit and that none of the 60 feet of ledges above the floor level were included.

Since only 20 feet of the 80-foot core was submitted, the test data obtained from this small portion of the core cannot be considered as being of much real value. It would lead us to assume that the stone in each of the 2½-foot sections submitted was fully representative of the stone in the remaining 7½ feet of the 10-foot section from which it was taken, and also that there were no chert seams present in the ledges represented other than those that were included in the 2½-foot sections.

However, the test data obtained from the 2½-foot sections did give a fairly good indication of the characteristics and quality of the stone in the different levels represented. The indications were that the stone in each of the 10-foot sections was sound and apparently of good quality. The presence of chert was noted in three of the sections.

It should be noted here that this core was one of the first that we attempted to test, and also that we did not use the same methods and procedures that we now use. At that time we did not crush the halves of the split core to make up graded samples of crushed material for the standard abrasion and soundness tests as we do now.

Columbia Quarry Company purchased this quarry from Nally, Ballard, and Cato, Inc., in 1950. Their first operations were in the south pit at about 30- or 40-foot depth. The north pit had considerable water in it at that time. Since then the south pit has been worked to a depth of approximately 100 feet, in 18-foot levels, over a considerable area. See pictures 9 to 14 in the attached file.

On April 27, 1960, the main operation was in the bottom level at 76- to 94-foot depth. Mr. Bernard Bruce, of the Columbia Quarry Co., told us that this level would be worked out in about 2 or 3 months, and that they would then open an 18-foot level in the top ledges in the west face of the north pit. See the circled 2 in picture No. 6 in the attached file.

We took a sample of the crushed material from one of the stockpiles, representative of the current production which at that time was from the lower level at the 76- to 94-foot depth. The results of the tests that were made on that sample are given below.

Lab. No.	Produced From	Sp.Gr.	% Abs.	Los. Ang. Abr. loss, %	Sod. Sulf. Sound. loss, %	Chert
60-1908	76' to 94'	2.65	1.3	29.4	5.98	0.2

These tests indicate the stone from this level to be of very good quality and that it is satisfactory for use in both p.c. concrete and I-11 bituminous work.

From this sample and from our examination of the current stockpiles, apparently the amount of chert or flint in this level is not excessive.

However, this sample represents only the lower level in this deposit, which as stated previously has been worked on 5 different levels. Although the stone from the 4 upper levels appears to be of the same general good quality, we have no test data in our records on the crushed material produced for our work from any of them.

It should be noted here for the record that we did have one sample of 2½-inch to 4-inch pieces from the 4th level, (58- to 76-foot depth), that was submitted December 3, 1959 for tests for use as filter media. This stone passed the 20 cycles sodium sulfate test for soundness, which indicated that it was of excellent quality. However, we have had no representative crushed samples from this level and therefore have no record of what chert might be present.

When the top level in the west face of the north pit is opened and crushing operations are started there, Mr. Brock will take the first of a series of samples that will give us full test data on the crushed material produced from each of the five 18-foot levels that will be worked.

Several samples are to be taken at planned intervals from each of these levels as they are worked in turn, and the samples submitted to the laboratory for complete quality tests and chert counts.

In the short time we were there we were not able to get a very good check on the chert seams that were exposed in the different levels in the 100-foot face in the south pit. We could see several small seams in the north and west faces as we drove down the ramp in the south pit but we were not able to tell in just which level they occurred or at what depth.

We will obtain more detailed information on the chert seams present in this deposit when the new area is opened in the west face of the north pit. A record will be made of any chert seams that are found in the individual levels, and as stated above counts will be made on periodic samples as a check on the quantity present in the crushed material.

See the attached picture file.

cc: W. D. MacLeod
Columbia Quarry Co.
J. E. Lamar
W. H. Schneider

SMP

SW

1

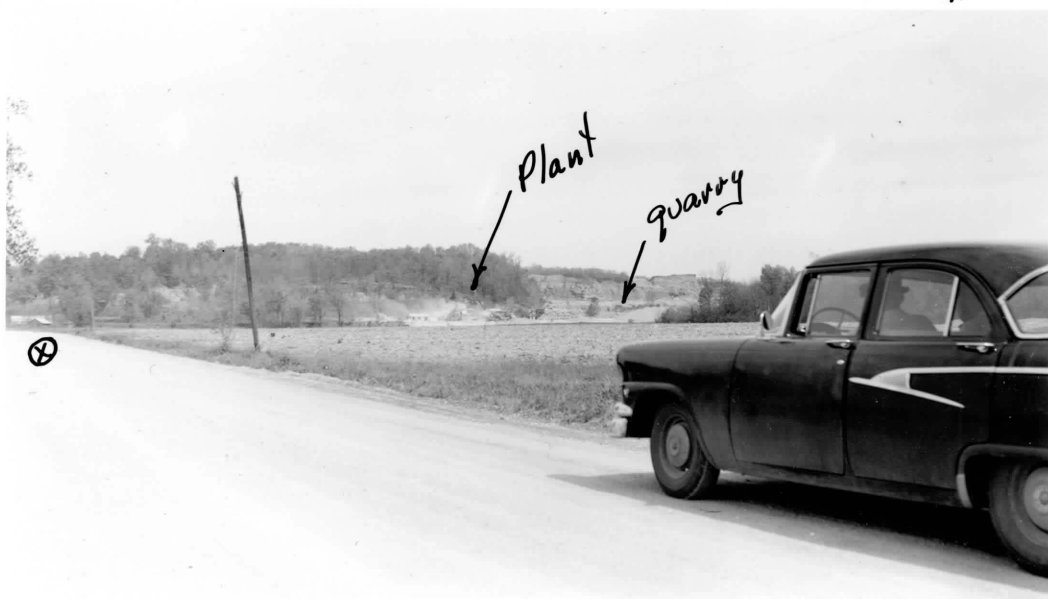


The pictures in this group show the quarry of the Columbia Quarry Company at Ullin in Pulaski County -- as it was on Wednesday, April 27, 1960. This picture shows the intersection on U.S. 51 where you turn northwest for about 1/2 mile to the quarry. Note the I.C.R.R. crossing at the right.

N

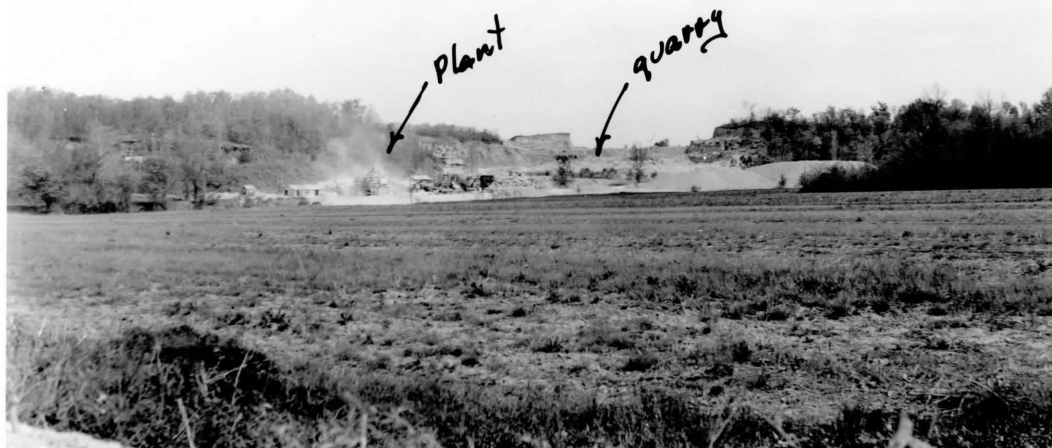
2

W



This shows the location of the plant and the quarry in the bluff-looking northwest from the township road from about 1/4 mile west of U.S. 51.

3



A closer view of the bluff, and the plant and quarry area--taken from the spot marked by the circled X on the road in picture No. 2. This bluff extends on a general northeast--southwest line for a distance of almost two miles. About 1/4 mile south of the quarry it bends to the west for about 1/2 mile before it turns back to the north.

According to Mr. J. E. Lear of the Illinois Geological Survey in his bulletin--"Limestone Resources of Extreme Southern Illinois"--dated 1959, the rock in this bluff is the Warsaw-Salem Formation of Mississippian age. This formation underlies the St. Louis Limestone and is just above the chert and silicious limestone of the Keokuk--Burlington Formation. About 100 feet of the Warsaw-Salem ledges are exposed here.

The point 1/4 mile to the south of the quarry where the bluff bends to the west marks the southernmost extent of the Warsaw-Salem exposure in this area.

W



These pictures No. 4 and No. 5 show the crusher and the screening plant. The circled 1 marks the same spot in both pictures.

W



5

6



At the entrance to the quarry area -- looking northwest. This shows the old north pit on the right, the south pit that is presently being worked on the left, and the cleared area in the right background marked by the circled 2, where operations were to be started in the next month or so-- as soon as the lower level in the south pit was worked out.

When Columbia purchased this quarry from Hally, Ballard and Cato in 1950 the north pit was full of water. See pictures 7 and 8. The south pit, which had been worked to a depth of 35 or 40 feet, was dry. Columbia started in the south pit at that time, and have now worked it to a depth of about 100 feet. See pictures 9, 10, 11, 12.

7

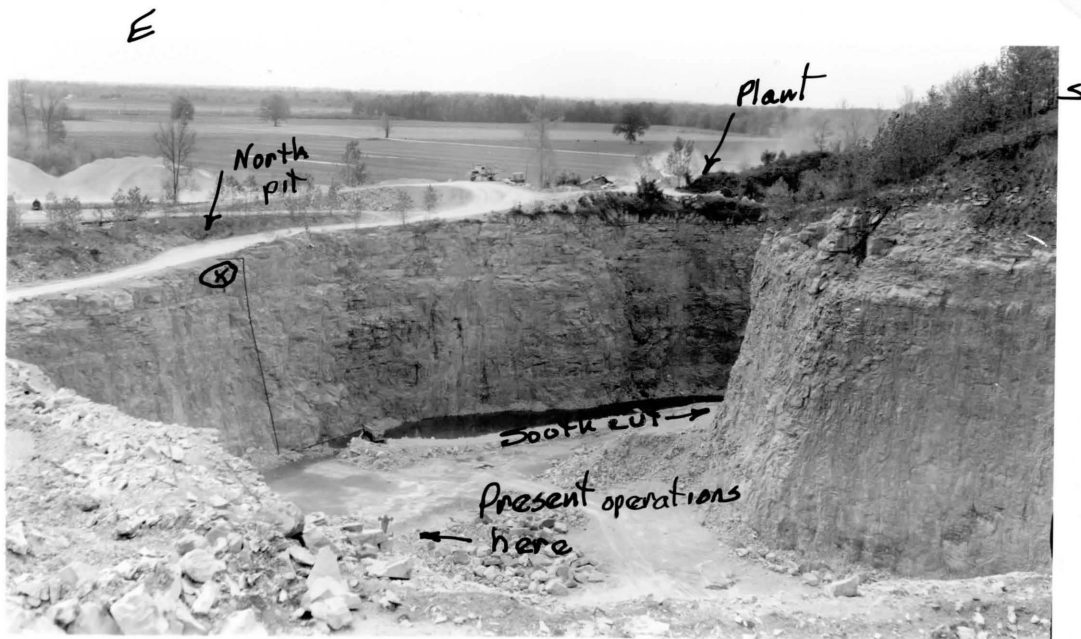


Two views of the north pit. This pit has not been worked since before 1947 or 1948. The face is about 60 feet in height. The circled X shows the same spot in pictures 6, 7 and 8. This picture shows a little of the roadway shown in No. 6.

8



Another view taken a little farther north. This shows more of the water filled hole.



9

Two views of the south pit. This picture was taken looking east from the stripped area above the west face. It shows the east side and part of the floor but does not show the area in the lower level that was being worked at that time or the ramp that leads down along the north face. See pictures 11 and 12, which were taken from the southeast side.



10

This shows the long south cut. It was taken from the road--looking south from the spot where picture No. 6 was taken. The circled X in this picture and in pictures 9 and 11 mark the same pipe.



This shows the ramp leading down to the lower levels in the south pit, with a good view of the stripped area above the main face--in the background. The circled 2 marks the area that will be opened next, when the lower levels in the south pit are worked out. See picture No. 6.

In driving down this ramp you get a fairly close look at most of the ledges that are exposed in this quarry and the small seams of chert or flint which occur at intervals of 10 or 12 feet. The 100-foot face has been worked in five 18-foot levels.

From information given by Dr. Lemar--"More than 100 feet of interlayered Mill Creek and Kornthal types of limestone are exposed here. The limestone referred to as Mill Creek is in general coarse grained, and light gray in color. The limestone referred to as Kornthal is medium-or fine-grained, medium or dark gray in color, and locally cherty. Deposits composed of interbedded Mill Creek and Kornthal types of limestone normally share the characteristics of both types of stone.

12



On Wednesday, April 27, 1960, operations were in the 18' lower level at 76' to 94' depth. The sample 60-1908 which was taken on that date was taken from crushed material that was produced from this level. When this level is worked out, operations will start in the area above and west of the north pit, which is shown in 6 and 11.

13



This shows more of the east side of the south pit. The area in the right foreground is the north end of the "long south cut" shown in picture No. 10.

14



This is the 18' lower level - from 76' to 94' depth. Frank Brock at the right.

(The sample of the stone for filter media-59-12641, that was submitted to the laboratory on December 3, 1960, was produced from the next level above - from 58' to 76' depth.

15



This shows some of the "dobies" that had been pushed aside in the lower level - to be "shot" later. Note the thin layer of carbonaceous and shaly material on several of these pieces.

16



Close view of one of the thin layers of carbonaceous or shaly material. Most of this crushes out and only occasional small pieces of it are found in the stock piles.

17



This is the 18' top level above the west face of the north pit, which is being worked off to clear the area marked by the circled 2, that will be worked next. The stone in this 18' level is being used for "dirty" ballast and rip rap.

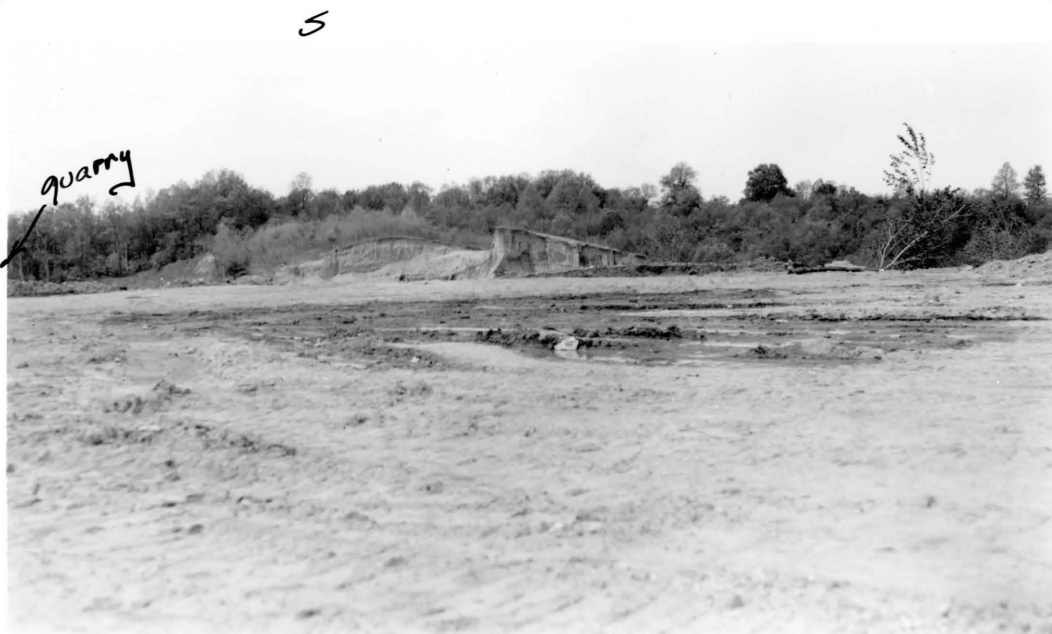
Note at the left that several holes have been drilled in preparation for another "shot" in this level.

18



These pictures 18 and 19 were taken to show a little of the area that has been stripped above the quarry.

19



The property recently acquired by the Medusa Cement Company adjoins the Columbia property on the north (not very far north of where this picture was taken). It runs from the highway US 51 - westward a mile or so. They have over 1000 acres and have an option on about 500 acres more.

20



The sample 60-1908 was taken from this stock pile. It was taken by Frank Brock and Richard Kiel.

21



Jack Gore, S. M. Peters, Frank Brock and Richard Kiel.