

Gazette 11-25-36  
BENTONITE PLANT PLANNED.  
Memphis, Tenn., Nov. 24 (P).—Perel and Lowenstein, Memphis jewelers, said today they will build a plant near Aberdeen, Miss., for commercial production of Bentonite, a rock product used in the refining of petroleum.

# LARGE DEPOSITS OF BENTONITE SOUGHT

## Mineral Clay Found in Arkansas Used for Many Manufacturing Purposes.

*Ark. Gazette* 4-23-31

The presence of bentonite, a valuable clay, in limited quantity south of Little Rock, has started the State Chamber of Commerce and the state Geological Department in search of larger deposits. The owners of bentonite in large quantity are in a position to make a great deal of money if it was announced, because this clay is used for many purposes in manufacturing.

Following is a statement yesterday by Dudley V. Haddock, manager of the State Chamber of Commerce here, who is eager to locate other deposits of bentonite:

"The Arkansas Geological Survey and the Arkansas State Chamber of Commerce are combing the state for deposits of bentonite, a clay utilized in the manufacture of commodities ranging from candy and massage cream to phonograph records, soap and dynamite, and if anyone encounters anything even remotely resembling it he is urged to send samples to Dr. George C. Branner, state geologist, Little Rock, with information concerning the general location of the area from which the specimens were taken.

"Bentonite already is being shipped from a deposit near Highway 167 about 14 miles south of Little Rock, but there are only a few thousand tons of it, so far as the Geological Survey has been able to determine. Its presence, however, and the fact that it is of high quality, it taken to indicate there is more of it elsewhere in Arkansas and whoever happens to own land with a large deposit upon it, is certain to enter the ranks of both state and federal income taxpayers because there is a large and steady demand.

"Bentonite, is nothing more nor less than volcanic ash altered after deposition and is of such fine grain that one thousand million particles would be required to cover a surface one inch square. It will pass through ordinary filters. Its color is white and one method of identifying it is to soak a part in water. Bentonite will absorb several times its proportion of water, swell to several times its original size, and become a soft creamy mass, resembling putty. It is colloidal and after swelling will remain in suspension indefinitely in mixtures as dilute as one part of bentonite to 50 parts of water. It may easily be distinguished from tripoli, Fuller's earth and kaolin because these clays are not permanently colloidal. Mixed with water they will settle."

Shipped to Texas.

"The bentonite from the small deposit south of Little Rock is being shipped to one of the great oil concerns in Texas for use in the dehydration of petroleum. Among other uses for the mineral are the softening of water, as a heavy lubricant when mixed with oil, for the manufacture of lake colors, as a filler or dressing for leather, as a mixer with asphalt serving as an ingredient of felt and waterproof paper board, as a super-absorbent of glycerine in the manufacture of explosives, as a harmless adulterant of drugs and candies, and as a filler for soap, paper, rubber, phonograph records, textiles and cordage and as pressed and molded electrical insulation. Its high plasticity makes it available with decreased quantities of bonding clays, molding sand in ceramics and the manufacture of abrasive wheels and graphite crucibles, and for many years it has been used in the form of antiphlogistine as a medical preparation. It has been found that as much as 50 per cent of soap substance can be replaced with bentonite and still an excellent soap will result. Labels pasted on metal with bentonite glue will neither curl nor drop off and if this list of uses is not sufficient to indicate it is a mineral jack-of-all-trades it serves as the base for massage cream and other toilet articles.

"The greatest economic importance of bentonite, however, has been demonstrated only recently with the development of processes for removing ink from old newspapers in order that the paper may be reduced to pulp and again be converted into news print for use in the press. This, of course, reduces the consumption of wood pulp for that purpose. When printers ink is treated with soda ash or caustic soda and filtered with a solution of bentonite the ink is absorbed and carried away leaving the paper decolorized. One ton of bentonite will de-ink 10 tons of newspaper and the cost of the clay, the gathering of old newspapers and the process itself, is less than the cost of new pulp. De-inked macerated paper pulp, with a small percentage of new wood pulp to strengthen the fiber is again ready for the papermaking process.

In Newton County.

"Because of the location of the known deposit of bentonite below Little Rock and the geologic formation, it is indicated the most likely part of the state to contain additional deposits is, roughly, the region between Little Rock and Texarkana, northwest and southeast of the Missouri Pacific railroad. At Harrison last week, however, Dr. Henry Mace Payne of Washington, geologist and consulting engineer to the American Mining Congress, and I, were shown specimens of a bentonite clay from a large deposit in Newton county. The Newton county deposit, preliminary tests indicate, is impure and its reddish color denotes the presence of iron, which would make it unsuitable for

many uses to which true bentonite is put but there is little doubt it can be made to serve some of its purposes. Mixed with cottonseed oil and alkali in proper proportions it should produce a cheap but excellent laundry soap, for one thing.

"The Newton county clay, when air dried, is almost as hard as soapstone yet as brittle as chalk. When broken the fracture is smooth, with a wax-like appearance, characteristic of true bentonite, and light rubbing with the finger produces a polish on the surface as smooth as glass and with the wax-like sheen obtained when a piece of waxed furniture is rubbed briskly. Scraping with a knife produces a powder free from grit and as fine as talc. A piece of it placed in water several times its volume begins immediately to disintegrate and absorb the liquid and within a few hours it becomes merely a mass of damp clay several times its original size.

"The American Mining Congress, the State Chamber of Commerce, and the state Geological Survey, co-operating, and the Geological Survey independently, expect to make a thorough investigation of the Newton county bentonite deposit and at the same time will continue the search for further deposits of true bentonite. The three organizations are confident that the tremendous variety of clays possessed by Arkansas will play a major part in the industrial future of the state and every effort is being made to determine their identity and possible uses."

# MANY DEPOSITS OF BENTONITE FOUND

## Specimens Forwarded to Geologists From Various Parts of State.

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Efforts of the Arkansas State Chamber of Commerce and the Arkansas Geological Survey to find deposits of bentonite as announced two weeks ago by the State Chamber have had surprising results, Dudley V. Haddock, manager of the chamber, said yesterday. At the time it was disclosed that one deposit in commercial quantity was being worked at a point about 15 miles south of Little Rock and that a bentonitic clay impregnated with iron oxide had been found in large quantities in Newton county. The Newton deposit, it was made clear, however, is not true bentonite.

Since it became known that the chamber and the Geological Survey were in search of bentonite and because of the request that anything resembling it be forwarded to Dr. George C. Branner, state geologist, both the chamber and Dr. Branner have been swamped not only with specimens of clay but with letters, telegrams, telephone calls and visitors from practically every section of the state. Nearly 50 clay specimens have been received and it was said yesterday by Dr. Branner that they contain some very interesting and unusual examples.

It was said by Mr. Haddock when he first made public the interest in bentonite that additional deposits, if they existed in the state, more than likely would be found in the territory traversed by the Missouri Pacific Lines between Little Rock and Texarkana because of the geologic formation. Bentonite is a volcanic ash that has undergone changes during the ages and is usually a coastal plain mineral. If the Gulf of Mexico today came as far northward as it did hundreds of thousands of years ago the Missouri Pacific's tracks would run along the shore line. The deposit now being worked below Little Rock is in this general area, and it served to confirm the prediction that the country between Little Rock and Texarkana was a fertile field for investigation.

True Bentonite Specimen.

One specimen of clay received by Dr. Branner a few days ago was identified immediately as true bentonite of an excellent quality. It was sent to the geologist by a resident of Arkadelphia and was found near that city in the dead center of the area where the chamber said it might be expected to show up. Whether the deposit is of such proportions as to warrant exploitation must be determined by engineers.

The state-wide interest aroused as a result of the bentonite incident, Mr. Haddock said, indicates that the people are becoming alive to the opportunity offered in the vast wealth of non-metallic minerals and that little effort is needed to spur them into action. The bentonite deposit discovered near Arkadelphia probably has been known to thousands of people in that vicinity for many years, but they were unaware of its identity and gave no heed to it until something occurred to indicate it might be of value.

Test Equipment Needed.

"The greatest need of Arkansas today is necessary equipment to test clays," Mr. Haddock said. "While the state possesses 102 known minerals, metallic and non-metallic, with the latter predominating in a vast majority, there isn't a ceramic laboratory within hundreds of miles. If one desires that a test of clay be made, about the nearest place the work can be done is the University of Illinois, at Urbana, and a minimum charge of \$25 is assessed. The Arkansas Geological Survey should be provided with the necessary equipment. The cost of apparatus necessary to make preliminary tests to determine whether a clay is worthy of further investigation is little more than \$1,000 but examination of state reports will show that the survey, probably the most effective development agency the state possesses, has been provided with funds so scant as to hardly enable it to keep the doors open.

"The most forward step to correct the situation came out of the recent session of the legislature as a result of the keen interest of Governor Parnell and his recognition of the value of the department. After considerable effort on the part of the interested persons with the assistance of the governor, the legislature agreed to transfer the severance tax on sand and gravel removed from state owned lands from the general fund to the fund for this department. It amounts to between \$12,000 and \$15,000 annually, little more than a drop in the bucket as compared with a sum the survey could use effectively, but at that it will be of considerable benefit. After adoption of the measure strenuous efforts were made in various quarters to induce the governor to veto it, on the plea that the funds involved should remain in the general fund, but the governor took the position that if it were invested in the survey it more than likely would produce for the general fund eventually a sum tremendously greater and approved it.

"The state is sadly in need of a survey of its clays to determine the varieties and their extent. It isn't such a tremendous task as one would expect because clays, to be exploited profitably, must be contiguous to railroads, and it is known that the largest deposits in Arkansas are so situated. Southern Arkansas especially is tremendously rich in clays and the proper research work especially along the lines of the Cotton Belt and Missouri Pacific might revolutionize the economic status of the state within a few years."

# MORE SPECIMENS OF CLAY ARE TESTED

## Much Interest Being Displayed in Deposits of Bentonite.

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Sixty specimens of clay are undergoing identification tests and a dozen others are awaiting their turn at headquarters of the State Geological Survey as a result of the co-operative effort of the survey and the Arkansas State Chamber of Commerce in seeking deposits worthy of exploitation, Dudley V. Haddock, manager of the chamber, announced yesterday. The work, initiated by the chamber several weeks ago, had as its purpose at the outset the location of deposits of bentonite, but interested Arkansans forwarded to Dr. George C. Branner, state geologist, specimens of clays from many portions of the state, whether resembling bentonite or not, with the result that some almost unheard of varieties have put in their appearance.

Two additional deposits of bentonite have been discovered, Mr. Haddock said. It was disclosed a week ago that a specimen of clay found near Arkadelphia had been identified by Dr. Branner as bentonite, and since then another has been sent to the geologist from near Benton and a third from the territory immediately on the outskirts of Little Rock.

The only deposit in commercial quantity known in the state up to a week ago was that in Saline county, 14 miles below Little Rock and one mile east of Highway 167. Production began there a year ago, and the material is being shipped to an oil concern in Texas. This deposit was mined intermittently in 1904 and 1905, approximately 250 tons having been produced during that period, but thereafter it remained untouched until shipments were resumed last year.

There also were two other known deposits in the state before the recent activity of the State Chamber and the Geological Survey, but whether the material is in sufficient quantity to exploit profitably has not been determined. One of these is in Hot Spring county, at Durian Switch, on the Rock Island railroad, and state Highway No. 9, five miles southeast of Malvern. It is known that this deposit has a thickness of six feet, but its area has not been determined. The second deposit is in Ouachita county on the Missouri Pacific Lines between Child-ester and McNeil and two miles from the former place. The Ouachita bed varies between 12 and 18 inches in thickness, and because of this it is doubtful whether it could be mined profitably. It is a question, however, for engineers to determine. The current quotation for bentonite is \$8 a ton, but before it is ready for shipment it must be dried. As taken from the earth its moisture content is considerable. The production cost, because of the removal of overburden, the necessity of drying before shipment and transportation to a shipping point, is considerable with the consequence that a deposit of small proportions could hardly be worked profitably.

Several of the various clays undergoing tests by Dr. Branner are very unusual, Mr. Haddock said, and at least one of them in all likelihood will add to the knowledge of Arkansas geologic history. This specimen came from Crowley Ridge, near Piggott, in the extreme northeastern section of the state. Investigation has determined that it is composed of several well known elements identified with Arkansas clays, but it also contains volcanic ash. Bentonite itself is ash deposited in water ages ago, to undergo chemical changes through the hundreds of thousands of years since it was thrown into the air by a volcanic eruption.

The fact that the Piggott specimen contains both coarse silica sand and ash, indicates that in this instance the ash fell upon land and, with the sand, was washed out to sea. The coarseness of the silica indicates further that the material was not washed a great distance and because the specimen came from a specific horizon there is every justification to prospect for deposits of bentonite in the immediate territory to the west. The geologic formation of this area is identical with those in which the producing deposit south of Little Rock and the deposit at Durian Switch, below Malvern, are found.

# PROSPECTING FOR BENTONITE CLAY

## Engineer and Crew Reported Seeking Deposits in Saline and Grant Counties.

Prospecting for Bentonite clay, valuable in modern oil refining, is being carried on extensively in Saline and Grant counties by an engineer and crew representing the Attapulugus Clay Company, it was reported here yesterday.

The Attapulugus company is said to be an affiliate of the Standard Oil Company of New Jersey and the Atlantic Refining Company. Reports indicate that the survey will include holdings of the Long-Bell Lumber Company and other lands in Grant, Saline and Hot Spring counties, and possibly will extend to other areas.

Dr. George C. Branner, state geologist, said yesterday that a small deposit of Bentonite was discovered in eastern Saline county, not far from the Pulaski county line, several years ago, and that a few additional finds have been reported since.

He said he had suggested to interests hopeful of commercial production of Bentonite that a minute investigation be made to determine location of the deposits. This clay is sacked and sold for about \$6 a ton, the geologist said. He said he was aware that oil refineries were desirous of obtaining a bountiful supply of the clay, which he described as of "very high type."

For commercial purposes, it was estimated that a deposit must have a potential output of 100,000 tons. It is obtained by open pit mining. Much of the prospecting has been in the vicinity of the Shrine Country Club, south of Little Rock, which is not far from where several small deposits previously have been found. Another deposit was located near Durian Spur, south of Malvern, and three carloads of the clay are said to have been shipped out for plant tests.

Dr. Branner described the Bentonite clay as decomposed volcanic ash, deposited in what formerly were low, marshy areas or lakes millions of years ago. It is produced commercially in Mississippi, Alabama, Texas and Wyoming.