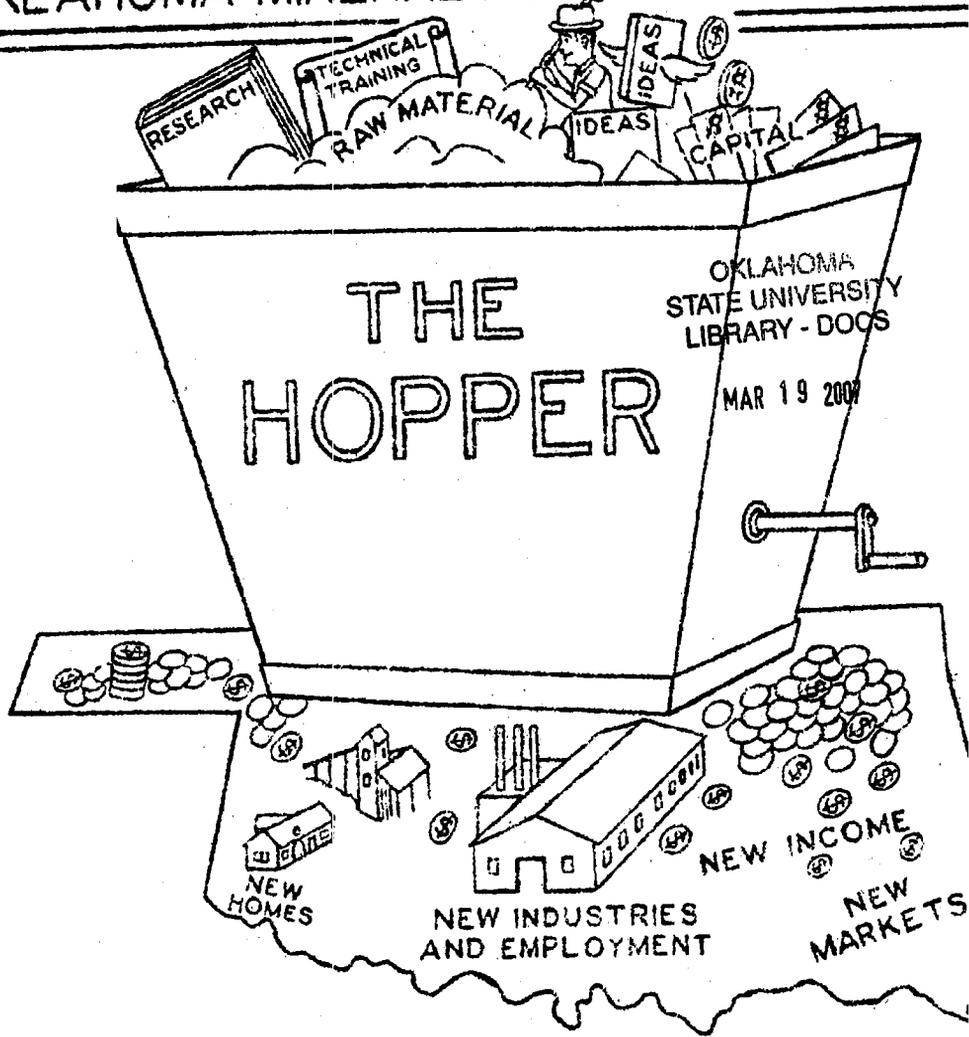


# OKLAHOMA MINERAL INDUSTRIES CONFERENCE



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## MCCURTAIN COUNTY HAS INDUSTRIAL MINERAL POSSIBILITIES

McCurtain County may well prove to be one of the more important Oklahoma sources of raw materials for the ceramic industries. At least interesting possibilities have been revealed from preliminary experimental work on samples from that part of the state. So far no mineral fuels are known in the county and this type of industrial mineral requires fuel for processing; hence fuels must be brought in, or the raw materials shipped to other areas if they are to be used.

In a list of possibilities may be included shales that burn to desired shades of cream and buff, and sericitic shales whose tiny flake-like particles indicate commercial acceptance as a filler in paint and other compositions and as a talc substitute. Some of the shales that have been tested fired to almost white, indicating the possibility that selective mining and beneficiation may produce a pure-white firing material.

Present knowledge and information on the possibilities is rather general, and based on preliminary sampling and testing done over the past two or three years, and on the detailed mapping and descriptions given by C. V. Honess in Oklahoma Geological Survey Bulletin 32, published in 1923. Present information indicates that several types of ceramic materials exist in the Ouachita Mountains of McCurtain County.

New road cuts have brought to view exposures that were not available to Dr. Honess, and some of the recent "discoveries" are based upon samples submitted by residents of McCurtain County and sent to the Oklahoma Geological Survey for identification and appraisal of commercial possibilities.

Obviously, most clays and shales have a low raw material and low or little royalty value, but are important as low value mineral materials which are used in important processing industries to make articles of value. They belong, for the most part, to that class of raw materials which have little value until processed, but are of great value in terms of industries that give employment.

W. A. Loftin, Jr., Idabel, first sent in samples of the sericitic shale, collected from exposures in a new road cut. More detailed sampling has been done by members of the Survey staff, and large samples have been supplied to industrial concerns for experimental use, and additional samples are to be collected for other interested concerns. Preliminary investigations indicate that there are large quantities of this material in McCurtain County. However, detailed sampling and mapping of the beds containing the better quality material remains to be done. The deposits of this material are in the upper part of the Mazarn shale, which crops out over a considerable area in McCurtain County, in the region northeastward from Glover.

In the lower beds of the Mazarn shale are dark slaty shales, some of which have been sampled by members of the Oklahoma Geological Survey and tested in the Survey laboratory by Mr. Burwell. Some of these samples fired to a light color, and are of sufficient interest to justify more detailed sampling, mapping, and laboratory experimentation.

Samples sent in by Granville T. Norris from a well on the property of Mrs. Norris' mother, Mrs. A. E. Hicks, Glover, proved to have definite possibilities for light-colored clay products. Subsequent investigations and sampling by members of the Survey have indicated that the material from the well came from the Collier shale, a formation composed mostly of black, carbonaceous to graphitic

shales. Material collected from the Hicks well, and random pieces taken from natural exposures have fired buff to almost white. Detailed sampling and testing of the Collier is planned by the Survey, in order to determine the quality of this shale for ceramic purposes, the thickness of the beds that have desirable properties, and their extent.

Within the Collier shale, is at least one unusually graphitic zone about 8 to 10 feet thick. This bed has been sampled at one locality, and may have some special uses.

In addition to graphitic and sericitic shales, McCurtain County also contains very large quantities of vein quartz. It occurs as the chief constituent in the coarse soils in many sections of the county, and also in masses making large hills. It is easily accessible, and could be readily available in large quantities from the veins and from washing the soil.

Chemically, quartz is silicon dioxide ( $\text{SiO}_2$ ), and has many industrial uses. "Sandpaper" is made from such quartz, crushed, ground, and screened, and the particles glued to paper. Another product is ganister. According to Ladoo, "Non-Metallic Minerals", McGraw Hill Book Company, New York, 1925, "Silica brick as made in the United States consists of a mixture of about 98 percent of rather coarsely crushed quartz or quartzite (called ganister), together with about 2 percent of lime....." Silica brick is one of the important refractories for temperatures higher than those at which ordinary fire-clay brick can be used. More important uses are for linings of by-product coke ovens, glass melting furnaces, and in metallurgical processes.

A visitor to the Oklahoma Industrial Train that toured the eastern United States last summer reported that his company was receiving ganister

from Oklahoma, but was unable to furnish more specific information. Members of the Survey surmised it must have been quartz from McCurtain County, but have been unable to verify it.

Another possibility that has occurred to Survey members is the use of rounded or partly rounded quartz pebbles found in the basal part of the Trinity sand and in stream gravels, for grinding in "ball" or "pebble" mills. Before World War II, the principal supply of these grinding pebbles came from Belgium; during the war, domestic sources were exploited, but no one has ever paid any attention to Oklahoma material.

Still another material that may be of interest to ceramic industries is volcanic tuff that occurs in the lower part of the Stanley shale. This bed ranges from 50 to 200 feet thick, and, because of the intense folding of the rocks in the region, is exposed in a series of outcrops totaling over 200 lineal miles, and involving an enormously large tonnage of material. In the course of experimenting on volcanic ash in the Survey laboratory, to produce a light, cellular product, pieces of a tuff were tested, and bloated at about 2,400°F. to produce a product that would serve nicely as a light aggregate for making concrete blocks.

Samples of a naturally light-weight material that could be quarried and used for building stone have been collected and sent in from several different localities. Survey geologists have identified the material as a bed in the Arkansas novaculite that originally was limy or calcareous, and from which the lime has been leached, leaving a light, porous material. Considerable field work will be required to determine location, thickness, and amount of this stone, and to sample it for tests to determine uniformity of weight and other physical characters.

Attempts have been made to mine manganese at numerous places in McCurtain County, and upwards of 1,000 tons have been shipped from this area during the past 40 years. Currently, operations are under way on the W. T. Harrel property, near Hudson Creek, on Cross Mountains, about 25 miles northeast of Broken Bow. Considerable ore was mined and shipped during World War II, and the open trench has now been cleaned up, a washing and beneficiation mill is being installed, and the operators expect to begin shipping ore within the next few months.

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#### WATER -- QUALITY AND QUANTITY

The shipwrecked sailor is always pictured as in distress. His agony stems either from too much water or too little. The poet describes the situation with "water, water everywhere but not a drop to drink."

No one understands the predicament better and can sympathize as fully with the sailor "on a raft" as the industrial process engineer. Time after time he faces the proposition of plenty of water but none fit to use, or a supply that is "only a drop in a bucket" compared to what is required. A prospective plant location may have everything desired--except water. If the process engineer on whose shoulders rests the final decision on plant location has deep furrows in his brow, it is a good bet that a water problem has had a great deal to do with creating those lines. If one desires to learn something of the extent and ramifications of the water problem in industry he need merely look through the various journals, journals dealing with chemistry, chemical engineering, transportation, power, textiles, and many other lines of business. Articles will be found dealing with the impurities carried by water and their influence on the process

and the products. Much is being written on corrosion and incrustations, telling of pipe coils full of insoluble matter, of deposits on blades of steam turbines with serious results, of damage to equipment. Other articles will explain how to remedy "bad" water. If consistent, they will also tell of the cost. You may be sure that it always costs. "Good" water is a priceless asset to any community. "Good" water and plenty of it is one of the best inducements that can be offered to industry.

One of the activities of the Oklahoma Geological Survey is the study of ground water reserves of the state. Such work may be little understood and not appreciated until "the chips are down" on industrial plant location. Then, if information is not available, it is "too late" to do anything about it.

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### THIRTY YEARS OF GEOLOGY, COTTON, AND PEANUTS

Thirty-three years ago, A. E. Fath of the United States Geological Survey, was mapping the area adjacent to Bristow, Oklahoma. In his report he says that most of the area was covered by a thick growth of timber and that this timber was being rapidly cleared "to make the land available for agriculture." He also says that the geology was very obscure, because, no doubt, of the thick cover of timber and other vegetation which protected bed rock from rapid erosion and exposure.

M. C. Oakes, Geologist on the Oklahoma Geological Survey staff, has been re-examining this same area recently, incident to preparing the new Geologic Map of Oklahoma, and finds conditions quite different. After more than thirty years of clean cultivation incident to growing cotton and peanuts, much of the land is so sheet washed and gullied that exposures of bedrock are abundant.

GEM AND MINERAL ENTHUSIASTS FIND  
BEAUTY IN OKLAHOMA ROCKS

That rocks and minerals of interest and beauty can be found in Oklahoma by those who search for them was demonstrated at the second Anniversary meeting of the Oklahoma Mineral and Gem Society in Oklahoma City early in June. The Society was organized in 1926, with seventeen charter members, and has grown to a membership of about eighty. Several members brought samples of their collections for display at the morning session, and after a noon dinner, groups visited several homes in Oklahoma City to look over excellent collections of crystals, minerals, and polished stone.

Several members of the Society have rather large collections, and included in them are many items found in Oklahoma. The material includes fossils, crystals, and rock and mineral specimens collected from the rock formations and from ancient stream deposits. Many beautiful specimens of petrified wood have been found in various parts of the state, and particularly among the gravel deposits left by the old streams. As much of the material carried by these streams apparently came from farther west, the deposits consist of mixtures of many types of rocks and minerals. Naturally, most of the pebbles are not of interest to collectors, but persistent search has been rewarded with discovery of pebbles of agate, chalcedony and other excellent material for cutting and polishing.

Interest of the members of the society is wide and varied, and activities include frequent organized exploratory and collecting trips to different parts of the state, some of which have resulted in discoveries of scientific value. Through these activities, the society has been instrumental or has assisted in calling attention to amethystic quartz and prehnite from the Wichita Mountains, previously unreported in literature

## RECENTRALIZATION VS. DECENTRALIZATION

"Recentralization of industry appears to be increasing in popularity. Some of the shifts are such as to deserve the characterization, 'revolutionary', which has commensurate popularity among financial writers. It is not clear, however, to other observers that the predicted profitableness of the moves for producers and consumers will be realized." This quotation is from the Oil, Paint, & Drug Reporter editorial page of the November 17, 1947 issue.

The editorial illustrates recentralization by citing the shift to the south of the cotton textile industry, and of current plans of the wool-processing industry to move to the sheep-raising districts of the west. The idea is also advanced that certain of the wool-processing districts may attempt sheep raising, thereby shifting wool production from the west to the presently wool-processing east. Other industries are moving to locations nearer the source of raw material. The trek of the chemical industry, notably those consuming industrial hydrogen, to the natural gas fields is pointed out. Cost of material, as well as expected savings in transportation, are the considerations.

This shifting and prospective shifting of industry has nothing to do with decentralization, which theme has been widely discussed for some time. The recentralization trend is based upon totally different factors. Both recentralization and decentralization will exert an influence on the industrialization of Oklahoma and should receive careful study by Oklahomans. The present trend of the glass industry into Oklahoma is a part of recentralization. Raw materials and low-cost fuel plus prospective savings in transportation were the considerations.

QUARRYING REVEALS NEW INFORMATION  
ON WICHITA MOUNTAIN GRANITES

Preliminary studies in the Mountain Park-Snyder area of the Wichita Mountains tend to support the suggestion that the Lugert granite exposed on the surface of the hills rests on an irregular surface of medium-grained green granite. This green granite is unreported in geologic literature, being unknown until quarrying in the area exposed it. It is dirty green in color and in some places where exposed grades into the overlying pink granite without a sharp dividing line between the two, as in the old Century Granite Company quarry.

In a new quarry a mile east of Snyder, the Century Granite Company is quarrying a fine-grained pink granite which is resting in contact on a green granite. In the new quarry the contact is very sharp, and the pink granite is no more than 10 to 12 feet thick, grading gradually upward from finely crystalline into coarsely crystalline. Where the sill is thin, as in this locality, the textural changes are closer together and quarrying for uniformly textured rock is difficult. It is thought that the fine-grained granite is a chill phase of the Lugert which, while still hot, came into contact with the already cold green granite. The Lugert magma cooled faster at the contact causing the granite to be more finely crystalline there than away from the contact.

Different quarry men in the area have stated that the granite changes in color and grain size with depth, which tends to strengthen the idea that most of the granite was a sill-like mass of irregular thickness. If this be true, securing granite which is the same in grain size and color requires careful quarrying more nearly in a horizontal direction than vertical.

OKLAHOMA INDUSTRIAL  
AND  
MINERAL INDUSTRIES CONFERENCE

October 12, 1948

A conference on Oklahoma's present mineral manufacturing and future potentialities will open the MADE IN OKLAHOMA Manufacturers Exposition in Oklahoma City, October 12, 1948, to be followed by a session on manufacturing problems in Oklahoma, and reports on progress toward industrial expansion. Program for the Mineral Industries Session is in the hands of members of the staff of the Oklahoma Geological Survey; that for the Manufacturing Sessions is being handled by another committee.

Last year, the Oklahoma Mineral Industries Conference, sponsored by the Oklahoma Geological Survey since 1940, was merged with the Oklahoma Industrial Conference, and resulted in the largest, and most successful meeting of its kind ever held in the state. Action at that meeting set up the Conference for this year, and the invitation of Oklahoma City as the meeting place was accepted.

The MADE IN OKLAHOMA Manufacturers Exposition will be held in the Municipal Auditorium, Oklahoma City, October 12-17, and all Oklahoma manufacturers are urged to exhibit their products. Reservations for space may be made through Paul Strasbaugh, Industrial Department, Oklahoma City Chamber of Commerce.

It is generally recognized that Oklahoma's future economic welfare depends on industrial expansion. This calls for selling Oklahoma to industry, and selling industry to Oklahoma. The 1948 Industrial and Mineral Industries Conference and the MADE IN OKLAHOMA Manufacturers Exposition are part of this program.