

MINERAL SURVEY

GETS UNDER WAY

"The Mountain Echo"
3-16-38 Marion County.

Under auspices of the State Geological Department and maintained by the Works Progress Administration, a survey of the mineral resources of Arkansas has been started in about 35 counties, including Marion, and may later be extended to others.

Purposes of this survey as officially declared are, to provide employment; to make an inventory of the natural resources of the state, and to train the personnel to observe, identify, measure, map and to describe accurately the natural resources as they are found.

The wealth and progress of a state are declared to depend upon the development and uses of its natural resources by its citizens. Hence the importance of citizens of Arkansas being provided with accurate information on these items of potential wealth that exist in their midst, in order that such things may be utilized in community welfare. It goes without saying that states which have the greatest developed natural resources are most wealthy and prosperous.

Through the W.P.A., the Federal government has made this project in Arkansas possible, by paying for all labor. It requires outside co-operation in the way of contributions to help defray incidental expenses, such as office equipment, transportation of workers, etc. Business men and property owners, also county officials and various commercial and civic organizations, have already volunteered their aid in various parts of the state.

It is doubtful if any section of Arkansas will equal the Ozark zinc and lead district in the way of reaping future benefits from this project, for no other part of the state of equal area possesses such variety and volume of essential minerals, such as zinc, lead, copper, pyrites, limestone, marble, road and building materials, besides many springs, streams, caves and scenic spots, all of which belong in the category of natural resources that contribute to the prosperity of a community. And right here in Marion county is the very heart of the Ozark district where all the things just mentioned are most abundantly concentrated. Yet the outside world, and even our own state, know but little about what we have here, and until they do become known, very little benefit will be realized from them by the community.

As this work proceeds, known deposits of mineral and road materials will be noted, their extent examined and described and mapped. Many new discoveries of important deposits are to be expected. These also will be described and mapped and will serve to benefit owners of lands.

This project does not confine its operations to investigation and mapping of minerals alone. The farm communities come in for special attention in what is termed the cultural feature of the survey. As the work proceeds, every farm house will be located on the map, together with information on the farm water supply, whether springs or wells, their capacity, etc. If water found at any spring or well appears to possess unusual qualities samples will be

taken for analysis. Schools, churches, highways, railroads, electric lines, etc., are to be mapped along with farm houses on the cultural sheets. When the work is finished a prospective settler may judge from a look at the base map of the county just what community he might choose to locate in. Surely, with all these objectives to be accomplished, the undertaking is worthy of the cordial co-operation of every citizen.

The survey in Marion county is being conducted under the supervision of C. M. Huddleston, with J. H. Hand retained as advisory engineering aide to assist the supervisor in view of the extra detail of subjects to be covered and reported in this county area. A force of about 15 men are allotted for field work, which started out satisfactorily to those in charge and will pick up as the workers become better acquainted with their duties.

Progress of the Mineral Survey Marion Co. 3-22-38

Since the mineral survey in Marion county was begun the first of this month, about 18 sections of land have been worked over in Township 18, Range 16. The west half of that township and range area has been gone over. While a check-up may disclose the advisability of a review on mapping of objects and locations in some instances, yet it can be said the field work within that area is practically complete. The territory thus far investigated is mostly farming and limestone bearing country, hence "cultural" road and building material have been the main features to be noted and mapped. However, some zinc prospects in the south edge of the township have been reported.

The cultural feature already has aroused considerable interest among citizens of the rural sections, who appreciate the community value of dwellings, school and church houses being noted and correctly mapped together with highway facilities being shown.

A study of water supply for homes as well as for industry is one of the chief objects of this survey. That brings into the picture all wells and springs for mapping in connection with farm homes. As this branch of the work proceeds, it is anticipated that a number of springs and perhaps some wells in this county will be found to possess rare mineral and medicinal qualities, that may result in community benefit.

Some of the men on the job are getting their stride of mastering the work in a manner that assures efficiency in the field on their part, and the experience which they are now getting, doubtless will lead them on to important future positions in the mining profession.

ARKANSAS TO HAVE MINERAL LAB'TORY

Yellville Mountain
Echo 10-19-38

Information was received October 11th from Washington stating that a project for the construction of a laboratory to test and analyze state minerals has been approved by the President. The project is sponsored by the Arkansas Geological Survey. The new building will furnish the Geological Survey with a much needed laboratory to analyze the samples now collected, mapped, and classified by the State Mineral Survey. Several thousand samples from sections of the state are now on hand to be tested or analyzed.

The State Mineral Survey is now active in thirty-seven counties covering 37,000 square miles, and employing about 700 people. The object of the survey is to locate, map, estimate, sample, and describe each section of land to determine the surface indications of minerals. In many places, bore holes are made to determine the depth and extent of deposits which do not appear on the surface. Subsurface cross-sections are being made of some of the districts where clay is the chief natural resource.

Maps are made of each township covered showing the cultural development which with the mineral and water maps, gives detailed information for future development and improvement of any area showing promise.

Plans are now in progress which will make it possible within a few days for the various counties to test the hardness and chlorides of water wells and springs. This information will be compiled in bulletin form and maps will be made showing the results of this survey.

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State Laboratory Will Fill Long Felt Need

2/1/39
Mountain Echo
Yellowville Ark.

The laboratory, long needed by the State Geological Survey, is now a reality. It is one of the results of the Geological Survey's sponsorship of the WPA Mineral Survey through George C. Branner, State Geologist.

The laboratory is on the site of the old penitentiary, familiarly known as "Walls." The structure housing the laboratory is just outside the walls on the west side. In fact, the wall surface is utilized as one side of the building. Through the courtesy of the State Highway Department, which owns the old penitentiary building, the 30,000 brick for making the laboratory were donated in the interest of a State Laboratory for the Geological Survey. WPA labor took down the wall to supply the brick, and these men are also erecting the new building.

The building of one story is 70 feet long by 20 feet wide. The kiln for testing ceramic materials is in one end and is built to the standard approved by the Bureau of Standards in Washington, D. C., and to that of the Ceramic Society of America. Samples of clay for testing must also measure to the prescribed standard, which is 100 pounds. Experienced clay men are in charge of the ceramic section, making tests for shrinkage, warping, color, etc.

In this laboratory are now being analyzed, tested and assayed the thousands of samples of Arkansas minerals, clays and waters sent in by the WPA field workers from the fifty-two counties in which the survey is being conducted.

When these samples are collected, the field men record the section, township and range number of the county where taken. They also make note of the extent of the deposit, its character, color, etc., and attach a copy of this record to the sample, the sample itself being given a number. On arriving at the laboratory, the samples are placed in the large receiving room where a clerk makes a copy of the record found attached to each sample and attaches another tag bearing a laboratory number.

The specimen is then sent to the preparation room where it is divided into two parts, one of which is retained in its natural state, its original field number and description carefully preserved with it. The

other half is broken (when the specimen to be analyzed is mineral) and the best parts taken to be reduced to powdered form. It is now ready for the analyst in the assay room. This part of the sample is labeled with the same description matter as the part from which it was taken; when the analysis is completed, the two parts of the original sample are filed together, the assayer's record attached. His findings and estimated possibilities and commercial value of the ore are combined with the report of the field sheet for a complete index of the mineral.

It is the intention of those supervising the work of the survey to have water testing stations in each county where the survey is being made. The counties are asked to contribute the nominal sum of money necessary to equip such stations and to carry on the work. A number of counties already have their water testing laboratories in operation and others have signified the intention of installing them. Those counties making no appropriation for this service of the survey cannot be accommodated.

The county supervisors of the Mineral Survey make selection of waters for complete analysis in the Little Rock Laboratory, which includes nineteen different quantitative tests. Other water survey stations in various parts of the state make partial analysis of the waters of that section.

The laboratory equipment, apparatus and chemicals are furnished by the state; salaries are paid from WPA funds. When the Mineral Survey is completed, the laboratory and all records will belong to the State Geological Survey. Among the fifteen persons employed at the laboratory are technical assistants, clerical workers and unskilled helpers.

All information, including field records and laboratory reports are preserved for the files of the State Geological Survey. Those wishing information compiled as a result of the Mineral Survey will find it in the offices of the State Geological Survey, where George C. Branner, State Geologist, will have it issued in bulletin form from time to time.

State Mineral Survey Is Testing Arkansas Waters

4/18/39
Mountain Echo

The industrial development of a region may be either materially advanced or seriously retarded because of the quantity and quality of surface and ground water supply.

Ground water conditions are influenced by the physical character of the soils and bed rocks. The two provinces into which the State of Arkansas is divided—the Highland and Lowland sections—are examples of different types of soil and rock formations. In the highland section the water producing horizons consist of sandstones, limestones, dolomites, shales, chert, river bottom gravel, or sand and gravel beds. In the lowland section the water bearing beds consist of silt, clay, sand and gravel, and are usually more productive than are the rocks of the highland area.

The quality of the water available for human use in any locality is of paramount importance to the well-being of its inhabitants, but because water is acceptable for domestic purposes it does not necessarily follow that it is acceptable for certain industrial uses also.

Industrialists of today investigate the water situation of potential locations for their plants. The mineral content of some water prevents its use in the manufacture of certain products because of the chemical reaction of the material to be made up. The quality of the water available is also a factor in the operation of hospitals, sanatoriums, railroads, laundries and dye houses, chemical plants, ceramic industries, to mention a few.

The popular idea that because a spring flows "sparkling cold water" necessarily means that the water is fit for human or industrial use is as erroneous as are many other popular beliefs.

Surface waters are always susceptible to bacterial pollution from surface drainage. The water from shallow wells along or near stream beds in the Coastal Plain of low land is sometimes rendered unsafe for drinking for this reason.

The WPA Mineral Survey is investigating the water wells and springs of the State as well as its commercial minerals. Samples of water for analysis are taken from all parts of every county in which the Survey is being made. In order to make the necessary analysis of minerals and waters and the testing of clays, a laboratory had been constructed in Little Rock at the west end of the old penitentiary in the southwestern part of the city.

In addition to this central laboratory the Mineral Survey is installing field stations in many counties where a partial analysis will be made of county water samples. Tests are made for carbon dioxide, (the excess presence of which causes pipe corrosion), chlorides, iron, and for hardness.

At the present time water testing stations are operating in Jonesboro, Craighead county; Mountain View,

Stone county; Mena, Polk county; Waldron, Scott county; Marshall, Searcy county; Camden, Ouachita county; Danville, Yell county. Other counties have signified their intention of sponsoring testing stations at an early date.

The advantage of sampling the water of wells and springs and of having them tested without delay is that test for carbon dioxide should be made as soon as possible after taking the sample, or within 18 hours.

In the course of sampling the water of wells and springs the County Supervisor in charge selects representative water specimens from all parts of his county for further analysis at the Little Rock laboratory where 15 additional tests will be made. These are for total solids, alkalinity, total iron, aluminium, calcium, magnesium, sodium, potassium, manganese, sulphate phosphate, nitrate, zinc, lead and total hardness.

The cost of the county sponsoring a water testing station is about \$50, covering the cost of equipment and chemicals. The county also provides a location for the plant at some point convenient to the town where the County Supervisor has his headquarters. The station is under the direction of the County Supervisor, who selects a member of his crew to make the tests, the latter receiving instruction in the standard method of water testing at the laboratory in Little Rock.

The field workers make an accurate record of the exact location of each well and spring from which samples are analyzed. This record is attached to the sample until the analysis is completed, when the record of the result is attached to the field report and filed in the office of the State Geological Survey. This reference matter pertaining to the quality and quantity of the water in the different parts of the State will be a valuable addition to previous compilations on the water wells of Arkansas, the last of which "List of Arkansas Water Wells" was issued by George C. Branner, State Geologist, in 1937.

The new information collected will be available to the public and will be of especial value in supplying data to those who intend to use ground water for industrial use.

The State Mineral Survey is under the direction of Robert C. Beckstrom, State Supervisor, with offices at 117 N. Victory Street, Little Rock, R. E. Vandruff, Technical Supervisor, is head of the laboratory in Little Rock; he also superintends the installing of field water testing stations and gives instruction for their operation.



Zinc Carbonate Ore, Marion Co.
Ark.



Lizard on Rock, Marion Co.
Ark.



Water flowing from fault, Bush
Creek, Marion Co. Ark.



Examples of weathering - Everton
lime, Bush Creek District, Marion Co. Ark.



Zinc Mines Marion Co. Ark.



Everton formation, Marion Co. Ark.



*Fold in Everton lime, Rush Creek,
Marion Co. Ark.*



*Everton formations, Rush
Creek, Marion Co., Ark.*