KANSAS GEOLOGICAL SURVEY
OPEN-FILE REPORT 47-2

KANSAS' NATURAL RESOURCES, 1947

By

John C. Frye

Disclaimer

The Kansas Geological Survey does not guarantee this document to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations based on data used in the production of this document or decisions based thereon. This report is intended to make results of research available at the earliest possible date, but is not intended to constitute final or formal publications.

Kansas Geological Survey
1930 Constant Avenue
University of Kansas
Lawrence, KS 66047-3726

State Chamber of Com
Wichita June 1947

KANSAS' NATURAL RESOURCES

Chairman Ross, Ladies and Gentlemen:

The topic that has been assigned to me — Kansas' natural resources — is indeed a large one as Kansas is truly a "resourceful" state. Our rich agriculture, our mineral deposits, our climate, our geographic location, our energetic people — all are natural resources. As my own work and interests are in the field of mineral resources, I will confine my remarks to that particular area of our natural resources. In that regard I wish at the outset to disagree slightly with President "Hal's" opening remarks. It is true, as he said, that natural resources do not build cities — but they certainly help. The occurrence of natural resources in any region makes it possible for an energetic people to build prosperous communities with industries that are in harmony with their environment.

Kansas was well endowed by nature with a wealth of mineral raw materials. I am constantly rediscovering to my amazement that many Kansans do not fully appreciate the position our state occupies in the world of minerals, and for that reason may not be as fully prepared as they should to take proper advantage of this natural asset. At the risk of repeating an old story to some of you, let us compare Kansas with our neighbors. For many years we have been well ahead of all near-by states, except Oklahoma, in terms of dollar value of our total mineral output. Recently we have been producing well over 200 million dollars worth of mineral materials annually, compared to about 75 million for Missouri, 25 million for Iowa, 5 million for Nebraska, and 80 million for Colorado.

When we analyze the many items that go to make up these totals we still find Kansas in a favorable position. The predominant item is the mineral fuels — oil, gas, and coal — as is true in the case of each of the top ten mineral-producing states of the nation. However, we also have important production of metals, nonmetallic industrial minerals, and construction materials. Each year more than 12

million dollars worth of zinc and lead are mined in Cherokee County, and our reserves of salt rank among the largest in the world. Annually we produce more than 5 million dollars worth of cement, and sand and gravel, stone, and clay products each generally exceed the million dollar rank. We are the leading state in the production of volcanic ash or pumicite and the pioneer producer of helium. Gypsum, agricultural lime, chat, crushed rock, and mineral wool all have an important place in our mineral economy. When we add to these the potential future production of chalk, bentonite, diatomaceous marl, oil shale, lignite, and several varieties of clay that are being studied by the State Geological Survey, the diversity of our mineral raw materials becomes apparent. This diversity of types is supplemented by a diversity of geographic position as there is scarcely a county in the State that does not have present or potential production of some mineral raw material.

Raw materials, to be valuable, must be produced and utilized in an efficient and economical manner. This brings to my mind an illustration used by Dr. Unterlighter in his address last evening. He explained that many industries come to be localized in his home town of Pasadena, California, in large measure because of the research facilities available in that community. Although he stated the case much better than I can, it seems quite evident that the community or local viewpoint of the research workers and research organizations is an important item. In this regard also Kansas is in a favorable position. Although our research facilities and staffs are small — perhaps too small for a state with our potentialities of development — they are highly efficient, capable, and possess keen insight into the particular needs and problems of Kansas. Their purpose is to serve the business, industry, and citizenry of Kansas. Use these departments and call on them for service; they belong to you!!

Again my thought immediately turns to the mineral industries and my own organization, the State Geological Survey, that is designed to serve them, the land owners, and the industries that utilize their products. Since underground water is one of our most valuable mineral resources, we cooperate with the State Boards of Agriculture and Health and the Federal Survey in investigating its availability and quality. In other fields of research the University, State College, Agriculture Extension Service, Kansas Industrial Development Commission, and others, are rendering valuable service in various fields. The dividends yielded to the State annually from these research and service programs are truly phenomenal. Investigations by one of our divisions have led directly to a construction investment in Kansas during the past year of a half million dollars in new ceramic plants, and larger investments are planned. The returns from our ground-water investigations to agriculture, industries, and municipalities, the aid rendered to the oil and gas industry, quarry operators, land owners, and others, and the value of topographic maps are ever increasing.

The research requirements in all phases of industry are constantly changing and increasing. What seems like an academic problem today becomes vital to industry tomorrow. New industries and products require new knowledge of raw materials and processes. A commonplace material such as limestone illustrates this need for new and more complete data. Not so long ago in the quarrying of a hard ledge of limestone for crushed rock, concrete aggregate, agricultural lime, and other uses, it was necessary to know only that it was hard limestone. It is not so now. The percentage of calcium carbonate equivalent must be accurately known before the rock can be accepted as agricultural lime; the petrography and reactive mineral content must be known for the best quality concrete aggregate; for many industrial uses such minor constituents as magnesia, phospherous, silica, and alumina must be determined; even the size of the individual grains may have a bearing on its usefullness.

Now, let us look even further into the question of natural resources and the economic well being of the State. Recognizing the importance, in themselves, of the raw materials industries — both agricultural and mineral — it is apparent that Kansas will benefit still more by processing these materials into finished products. This part of the story is squarely up to you men and other forward-looking people in Kansas. It has been pointed out before during these meetings that communities are built by the people who are the community. In many cases the value of the finished product is many times the value of the raw materials of which they are manufactured. Again an example from the ceramics industries illustrates the point. The average selling price of raw clay for firebricks or pottery is about 8 dollars per ton and of volcanic ash 10 to 12 dollars per ton. When these materials are manufactured into fire brick their value is increased to more than 20 dollars per ton and into pottery to as much as 1,000 dollars per ton. Many other illustrations of the same type can be drawn from the mineral industries and the lesson they teach seems quite clear. We have an abundance of natural resources; we have the necessary research and service facilities within the State; we have capable and energetic people. The direction and distance we go are up to you.

As a concluding thought I would like to leave with you the slogan, "LET'S PACKAGE IT IN KANSAS."

By John C. Frye, Executive Director, State Geological Survey of Kansas at the University of Kansas in Lawrence.

Not sent with talk

COMPARATIVE MINERAL PRODUCTION FIGURES
FOR KANSAS AND ADJOINING STATES

Figures for 1945

	IOWA	KANSAS	MISSOURI	NEBRASKA	OKLAHOMA	Colorado
Metallics	--	$12,398,260	$36,456,309	--	$18,117,208	
Non-Metallics	$17,825,000	15,973,633	25,732,513	$2,955,080	3,220,150	
Mineral Fuels	6,995,000	181,869,000	10,151,000	360,000	258,345,000	
Misc. Minerals	5,469,648	3,546,238	5,214,889	1,671,419	3,716,517	
Totals (no duplication)	$24,820,000	$210,187,000	$74,171,000	$4,953,000	$282,859,000	76,864,000

Not sent with talk

COMPARATIVE MINERAL PRODUCTION FIGURES FOR KANSAS AND ADJOINING STATES

Figures for 1945

	IOWA	KANSAS	MISSOURI	NEBRASKA	OKLAHOMA
Metallics					
Copper			$ 917,730		
Lead		$ 1,267,640	30,370,900		$ 2,178,208
Silver			67,429		
Zinc		11,130,620	5,100,250		15,939,000
		$12,398,260	$36,456,309		$18,117,208
Non-Metallics					
Barite			$1,841,959		
Cement	$6,220,991	$5,157,991	6,134,452		
Clay - Products	3,578,199	1,593,981	1,462,818	$ 281,357	$ 707,272
Clay - Raw	401,870	196,950	2,311,660	34,757	178,658
Coal	6,995,000	7,109,000	10,098,000		9,965,000
Gypsum	569,964	xx			
Helium		477,268			
Lime			5,031,222		
Liquefied Pet.		500,000			4,100,000
Natural Gas		52,400,000	53,000		52,580,000
Natural Gasoline		2,680,000			15,200,000
Oil		119,180,000		360,000	176,500,000
Pumice		187,651		59,735	
Salt		3,837,850			
Sand & Gravel	2,091,391	1,674,742	2,780,467	1,956,560	761,448
Stone	5,306,299	2,847,200	6,055,747	622,671	1,572,772
Tripoli			114,188		
	$25,163,714	$197,842,633	$35,883,513	$3,315,080	$261,565,150
Misc.	$5,469,648	$3,546,238	$5,214,889	$1,671,419	$ 3,716,517
Totals	*$24,820,000	*$210,187,000	*$74,171,000	*$4,953,000	*$282,859,000

*Total value, eliminating duplications