

MINERALS REPORT 1

MINERAL PRODUCTION IN SOUTH DAKOTA

IN 1957

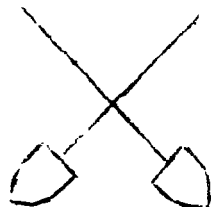
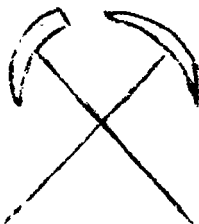
Prepared by the  
U. S. Bureau of Mines  
in cooperation with the  
South Dakota State Geological Survey

Allen F. Agnew, STATE GEOLOGIST

SOUTH DAKOTA GEOLOGICAL SURVEY

Vermillion, South Dakota

February 1958



## MINERAL PRODUCTION IN SOUTH DAKOTA IN 1957

### PRELIMINARY ANNUAL FIGURES

Estimated mineral production in South Dakota in 1957 was valued at \$39.7 million, a decrease of 5 percent compared with 1956.

Metal production (gold, silver, beryllium, columbium-tantalum, and iron) decreased in value nearly 1 percent in 1957 as compared with 1956, but for the first time since 1954 it represented more than half (51 percent) of the value of the State's total production. Declines were recorded in the value of gold, silver, and iron, whereas the value of beryllium and columbium-tantalum increased. Production of uranium ore was nearly 3 times greater in fiscal year 1957 (July 1, 1956 to June 30, 1957) than in the previous fiscal year. Quantity and value data for uranium ore produced by calendar years are not yet available; thus the value of uranium is not included in the value of the State's mineral production. Operation of the uranium processing mill at Edgemont in Fall River County greatly accelerated the production of uranium ore from South Dakota deposits.

The value of all nonmetal commodities with the exception of lime, and sand and gravel decreased in 1957. The greatest decline in value was shown by bentonite, which reflects the increased cost of mining the deposits in Meade County, and the greater use of raw material from Wyoming for processing in South Dakota mills. Sand and gravel for road building was in greater demand as construction of the Interstate Highway System progressed.

Output of the mineral fuels (lignite coal and petroleum) in 1957 increased 2 and 53 percent respectively, as compared with 1956. Petroleum exploration was greater in 1957 with 45 well completions compared with 43 in 1956. One discovery was made, about 1 mile west of the two producing wells in the Buffalo field of Harding County.

METALS

Output of beryllium concentrate (beryl) and columbium-tantalum concentrate (columbite-tantalite) rose sharply in 1957 as compared with 1956. The resumption of purchases of columbium-tantalum concentrate in July 1956 by the General Services Administration did not materially influence 1956 production but was effective in 1957, and production increased tenfold.

Declines were recorded in 1957 in the production of gold (2 percent) and silver (6 percent), as compared with 1956. Homestake Mining Co. at Lead increased the output of gold and silver slightly over that of 1956, but production of the Bald Mountain Mining Co. at Trojan declined considerably.

Production of iron ore, all mined on Strawberry Hill in Lawrence County and used exclusively in the manufacture of cement at Rapid City, dropped sharply as compared with 1956. Output varies from year to year depending on the quantity of cement produced and the maintenance of an adequate stockpile at the plant. Because of the high production in 1956 only a nominal quantity was required in 1957.

With a full year's operation of the uranium processing plant at Edgemont by Mines Development Co., the production of uranium ore in fiscal year 1957 was nearly 3 times that of the previous fiscal year. Production data are not yet available by calendar years, and value is not included in the State's mineral value total.

A technically feasible process for the extraction of uranium from uraniferous lignite was developed. Ohio Oil Co.-Arthur Pew Associates withdrew a proposal to build a plant to process uraniferous lignites in North Dakota because studies indicated the operation was not economically feasible. International Resources Corp. applied to the Atomic Energy Commission for a contract to purchase uranium concentrates derived from urani-

ferous lignites. The reported price was \$10.50 a pound for contained U<sub>3</sub>O<sub>8</sub> in acceptable concentrates. However such a contract would have a life of only 2 years and whether the operators could continue to operate at a lower price after completion of the contract has not been determined.

Table 1.--Mine production of uranium ore in South Dakota during fiscal year 1957 <sup>1/</sup>

County	Number of Properties	Ore (short tons)	U <sub>3</sub> O <sub>8</sub> contained (pounds)
Butte-----	1	2/	2/
Custer-----	2	2/	2/
Fall River-----	28	65,915	222,927
Harding-----	2	2/	2/
Lawrence-----	1	2/	2/
Pennington-----	2	2/	2/
Undistributed-----		1,876	5,835
<b>Total-----</b>	<b>36</b>	<b>67,791</b>	<b>228,762</b>

<sup>1/</sup> Based on data supplied to the Bureau of Mines by the Atomic Energy Commission.

<sup>2/</sup> Figure withheld to avoid disclosure of individual company confidential data; included with "Undistributed."

The Defense Minerals Exploration Administration approved contracts for Government assistance in exploring deposits of uranium with McAlester Fuel Co. at the Star claims and leased lands in Fall River County, and with Wesley Anderson et al at the Jill group of claims in Harding County. Total amount of the contracts was \$78,836, the Government to participate to the extent of 75 percent.

NONMETALS

Declines were recorded in 1957 in the value of all nonmetallic commodities except lime and sand and

TABLE 2.--Mineral production in South Dakota 1956-57 1/

Mineral	1956		1957 (preliminary)	
	Short tons (unless other- wise stated)	Value	Short tons (unless other- wise stated)	Value
Beryllium concentrate-----gross weight-----	195	\$94,830	260	\$140,000
Clays-----	2/ 201,129	2/ 201,129	2/ 185,000	2/ 185,000
Coal (lignite)-----	24,519	89,761	25,000	3/
Columbium-tantalum concentrate pounds-----	237	403	2,320	5,800
Feldspar-----long tons-----	45,226	288,843	40,000	255,600
Gemstones-----	4/	10,000	4/	10,000
Gold (recoverable content of ores, etc.) troy ounces-----	568,523	19,898,305	556,400	19,824,000
Gypsum (crude)-----	15,794	63,176	13,300	53,200
Iron ore (usable)-----long tons, gross weight-----	22,146	100,456	1,000	4,600
Mica:				
Sheet-----pounds-----	12,494	67,053	7,200	38,300
Scrap-----	1,268	31,224	1,200	28,000
Sand and Gravel-----	12,539,000	8,423,050	13,000,000	8,710,000
Silver (recoverable content of ores, etc.) troy ounces-----	136,118	123,194	128,000	115,800
Stone-----	2,200,421	5,724,758	2,000,000	5,200,000
Value of items that cannot be disclosed: Cement, bentonite, lime, petroleum, and values indicated by footnote 3-----		7,547,393		5,897,000
Total 5/-----		41,807,000		39,737,000

1/ Production as measured by mine shipments, sales, or marketable production (including consumption by producers). Value of uranium ore is excluded.

2/ Excludes bentonite; value included with items that cannot be disclosed.

3/ Figure withheld to avoid disclosure of individual company confidential data; included with "Undistributed."

4/ Weight not recorded.

5/ Total has been adjusted to eliminate duplication in the value of raw materials used in the manufacture of cement and lime.

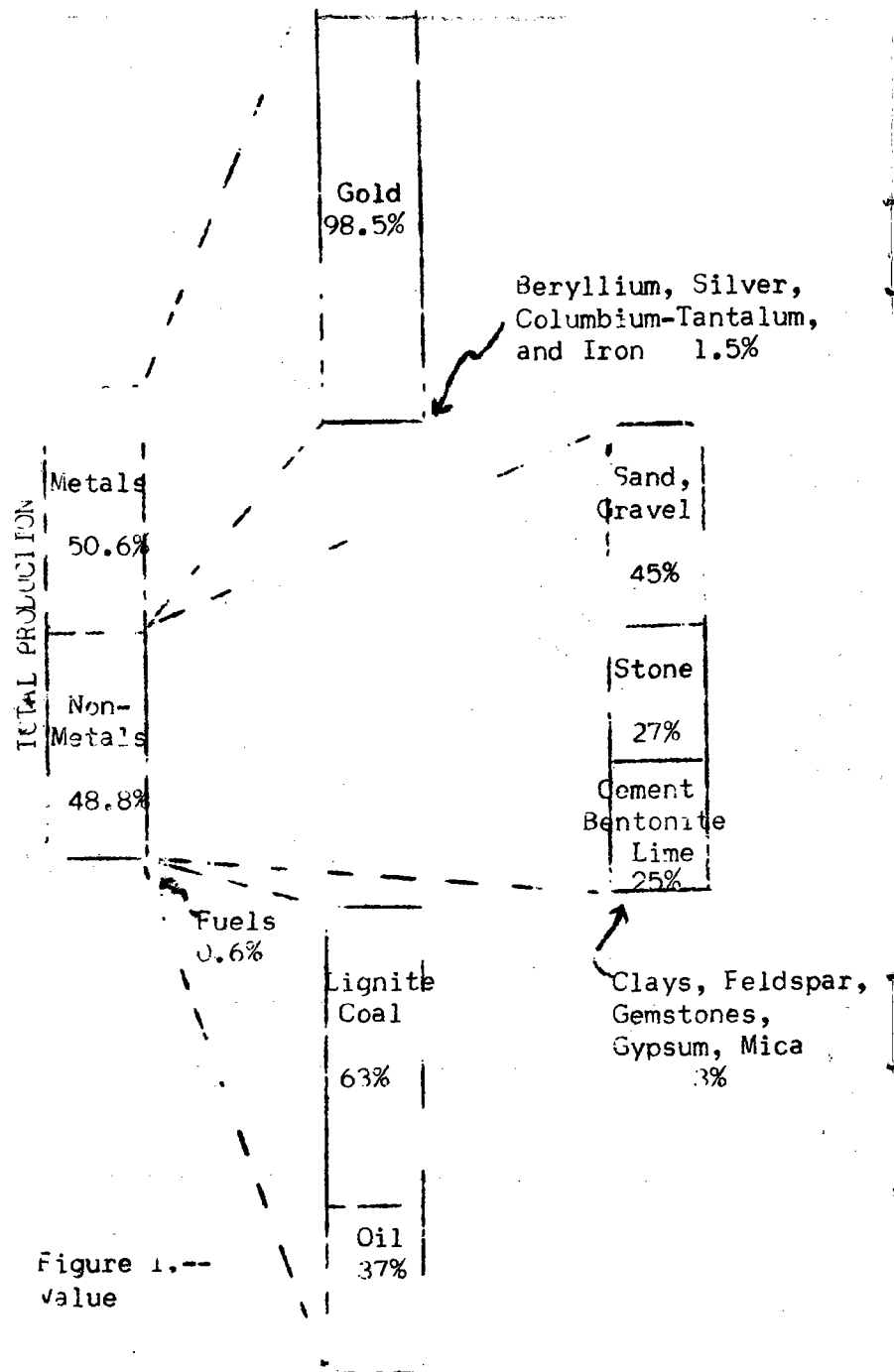


Figure 1.--  
value

gravel, which increased moderately. Shipments of cement from the plant at Rapid City decreased. A construction program that included the installation of an additional kiln and accessory equipment was started during the year. This, the fifth kiln at the plant, will increase annual capacity to 2.5 million barrels. Production of bentonite in Meade County decreased sharply and reflects the increased use of raw material from deposits in Wyoming. Three processing plants near Belle Fourche operated throughout the year, and Archer, Daniels, Midland Co. of Minneapolis, Minn. announced plans to build a fourth plant northwest of Belle Fourche. Output of the plant is to be used by the Erie Mining Co. at its taconite plant in Minnesota.

The feldspar grinding plant of Consolidated Feldspar Dept., International Minerals & Chemical Corp., at Keystone was completely destroyed by fire in January 1957 and will not be rebuilt. The corporation continued to operate its grinding plant at Custer. Vickers Feldspar Corp. of Chicago, Ill., built a crushing and screening plant at Keystone and began operation in June 1957. The plant has a daily capacity of 1,600 tons. Feldspar, mica, and beryl are hand-sorted from a conveyor belt and quartz is screened into 5 sizes for construction material.

Production of sand and gravel in 1957 increased 4 percent in quantity and 3 percent in value compared with 1956. The gain, although slight, reflects the accelerated activity in road building through construction of interstate highways. According to a report by the Bureau of Public Roads, United States Department of Commerce, in the 17 months since the program was approved (June 29, 1956 to December 1, 1957), South Dakota had programmed 66.3 miles of highway at an estimated cost of \$29.8 million, and 34.8 miles costing \$7.9 million was under contract or had been completed.

## MINERAL FUELS

Production of coal (lignite) increased slightly in 1957 compared with 1956. Output was from strip mines in Dewey County and small quantities were produced from mines in other northern and northwestern counties for local consumption.

Petroleum output from the Buffalo field in Harding County advanced 53 percent in 1957 compared with 1956. Exploration activity increased in 1957 with 45 completed wells compared to 43 in 1956. One discovery was recorded; a wildcat 1 mile west of the two producing wells in the Buffalo field, at a depth of 8,607 feet in the Red River formation. Exploration in South Dakota has been closely linked with activity in the Williston Basin in North Dakota and Montana, although only about one-third of the more than 200 wells drilled in the State since 1953 have penetrated the Paleozoic formations which have been the primary source of oil in the Williston Basin. Much of the exploration has been done to test possible anticlinal traps; however, it has been suggested that stratigraphic traps may be more productive.